PRENTICE-HALL

ARITHMETIC

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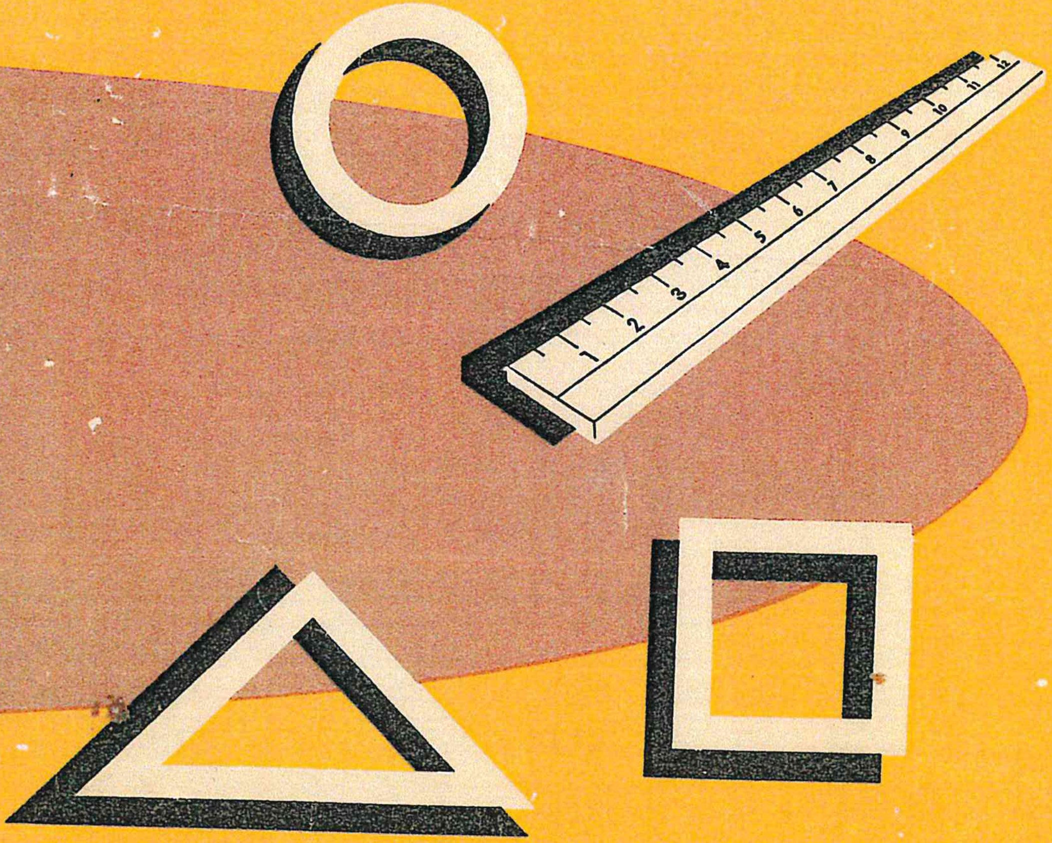

PRENTICE-HALL

ARITHMETIC 1

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Artwork by Helen and Bill Hamilton

- A modern introduction to mathematics for children.
- Emphasis on the structure of mathematics.
- Mathematical situations that lead children to discover "a number has many names."
- New format with larger space for the child's writing.
- Perforated pages for easy use.
- Early and rapid introduction of numerals 1-2-3-4.
- Early introduction of computation.
- Numerals, 0 through 10, introduced on separate pages.
- Large manuscript style numerals.
- Special pages for use with school experiences.

Prentice-Hall, Inc., Englewood Cliffs, N. J.

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The authors of the PRENTICE-HALL ARITHMETIC SERIES elieve that a sound program in elementary mathematics should be ogical in the mathematical sense, psychologically valid, and func- ional.

The mathematics dimension brings out the relationships, structure, nd system of the field, including major ideas such as concepts of umber, numeration systems, operations, properties of addition and ultiplication, the special property of zero and of one, and the idea f closure. The program should also include some development of eometry, sets, and mathematical sentences.

The program should be psychologically valid. It must utilize the est present knowledge about how children learn, how children grow nd develop, the nature of individual differences, the nature of mo- ivation, and other relevant information that has become available hrough research.

The program should be functional. In the elementary school arith- etic is taught to help children appreciate and understand the mul- itude of ways in which mathematics is necessary both to the ommunity and to their personal lives. The content must be related the realities of the world in which a particular age group is living, e world of a six-year old, a ten-year old, or a twelve-year old.

PRENTICE-HALL ARITHMETIC GRADE 1 has been prepared on the asis of these ideas. This Teachers Edition provides a detailed outline of every lesson and gives suggested teaching procedures. The teacher will soon see how each lesson may be adapted to the particular needs of her class and also to the individual needs of each pupil.

The *purpose* on the Teachers Edition page provides a summary statement of the specific aim of the lesson.

The *vocabulary* alerts the teacher to mathematically useful and accurate words to be included in the class discussion and lesson development.

The *materials* section lists "things" that may be used effectively in developing the lesson.

The *development activity* suggests a stimulating learning situation that takes the class directly into the concept being dealt with by each lesson. Words in **boldface** type may be said to the pupils. Explanatory material is given in lightface type.

The *procedure* suggests a method for working with the page. It may be adapted easily to the teacher's own language. Activity for the pupils is suggested in this section.

The *extended activity* takes the children an additional step in extending the application or the meaning of the lesson.

A unique feature is the inclusion of a number story suggested for the introduction of each number. These stories are taken from true life situations. They are provided in this Teachers Edition and are keyed to the proper lessons.

MARK WASHES MIKE

The Story of One

Refer to page 9.)

Once upon a time there was a little boy named Mark. He had oved with his parents to a new town. He missed his friends om school and from his old neighborhood. He missed seeing is grandparents every day, too. To tell the truth, he was nesome. His mother was trying and trying to think of ways make him happy when, suddenly, Mike, his little wire-haired rrier, jumped into his lap and snuggled down as if to say, Don't be sad, Mark! You have me!"

This gave Mother an idea. "I know what," she said. "How ould you like to wash Mike? He got very dirty on the trip, and haven't had time to give him a bath."

"That's a good idea! We'll do it out in the backyard under e tree," said Mark, cheered by the thought.

Mother said, "Come, I'll help you." She helped him carry tub full of lukewarm water out under the tree. "Here are the other things you will need." She gave him a brush, a bar of dog soap, a towel, and a piece from an old gray blanket.

"Go ahead," Mother encouraged.

Mike was just the right size to stand in the tub. It was a bit difficult for Mark to hold Mike and wash him, too. Mother stood nearby, but she didn't help. Once Mike jumped out, but Mark quickly caught him and put him back in the tub. When it came time to rinse Mike, Mother helped change the water.

By and by, Mark took Mike out and held him while he gave him a good rubdown with the towel. "Don't you like this, old fellow?" asked Mark. But Mike wanted to play and tried his best to run away.

After a while, Mother put the blanket in the sun and helped Mark hold Mike down until he was dry. Then Mark began to brush his fur. How soft he was. How clean he looked. In no time at all, he looked as fluffy as a white cloud. "Why not put his harness on and fasten the leash to it," suggested Mother. "Take him for a walk around the block. Maybe he will help you find a new friend."

Mark looked up at his mother and said, "Mother, who needs friends when he has a dog like Mike."

TWIN BROTHERS FOR MARY ANN

The Story of Two

(Refer to page 11.)

Mary Ann could hardly wait for the school bell to ring. Mother and the two new babies would be home this afternoon. Daddy had told her about the new baby brothers—not one, but two—who were coming to live with them. Mary Ann had never had a baby brother before. Now she would have two—twins.

The school bell rang, and Mary Ann did not even wait for her best friend, Elizabeth. As a matter of fact, Mary Ann was the first one out the door, and she didn't walk home. She ran!

Through the front door, down the hall, and into the bedroom hurried Mary Ann. There was Mother. Mary Ann had missed her very much, but most of all she wanted to see what was in the two bassinets beside Mother's bed. Inside each was a tiny baby fast asleep. "Which is which?" asked Mary Ann. Quietly Mother showed her the bead necklace on each baby. One said *Ronald* and the other said *Donald*. Mary Ann looked a long time; then she tiptoed out of the room because the babies had to sleep.

Mary Ann sat in Daddy's big chair in the living room with her chin in her hand. What were the babies good for? They couldn't even see her, all they did was sleep, and oh, how quiet she had to be. Mary Ann was still sitting and thinking when Daddy opened the door a few minutes later.

Daddy held two packages over his head and then put them behind his back. "Which hand will you choose?" he asked. Mary Ann pointed to his right hand, and Daddy handed her a box. In it, wrapped in a blanket, was a baby doll with a bottle in its mouth.

"Oh!" said Mary Ann. "Just like the new babies." But Daddy had another surprise, for in the other package he gave Mary Ann was another doll, exactly like the first. Mary Ann had twin dolls, just as she had twin brothers.

The next day was Saturday. There was no school, and Mary Ann followed Mother wherever she went. And do you know what else she did? Whenever Mother fed the twins, Mary Ann fed her twin dolls. When Mother bathed the babies, Mary Ann bathed her dolls, too. When Mother put the babies to sleep, Mary Ann put her twins to sleep, too.

Late in the afternoon Uncle Joe came to see the new babies, but first, he had to see Mary Ann's twin dolls. Uncle Joe laughed, "What would have happened if your Mother had had three babies instead of two?"

Mary Ann laughed, "Always room for one more, but right now the real twins and the twin dolls are keeping everyone in the house very busy."

PACKAGES FOR OTHERS

The Story of Three

(Refer to page 13.)

"See these three empty boxes?" asked Miss Davis. "How would you like to fill them for boys and girls?"

"Why do the children need boxes of things?" asked Tony.

"There are many reasons. Sometimes these children have lost their homes. Sometimes there have been floods or fires. When these children and their families need help, we, like many others, try to do our share," replied Miss Davis.

"What could we put in the boxes?" asked Jack.

"Oh, small items for cleanliness and small toys to play with. Suppose we make a list together," said Miss Davis.

As the children made suggestions, Miss Davis wrote their ideas on the chalkboard. Soon the list looked like this:

3 toothbrushes
3 tubes of toothpaste
3 cakes of soap
3 combs
3 boxes of crayons
3 airplanes
3 boats
3 yo-yos
3 balloons
3 balls

"Where will we get the money?" asked Jack.

"A good friend of mine gave me three crisp new dollar bills," replied Miss Davis. "My friend said if we needed more, we should ask her."

"Well," cried George eagerly, "how soon can we get started?"

"We could walk to Pat's Variety Store after lunch. Would all of you like that?"

"Yes!" replied the class.

Mr. Browning, the storekeeper, saw Miss Davis and the children coming. Because the children often visited his store, Mr. Browning knew everyone in the class. "What can I do for you today?" he asked. Tony, who had been chosen class leader, handed Mr. Browning the list. Out came Mr. Browning's glasses. On to the end of his nose they went. "Toothbrushes, combs, soap, toothpaste," Mr. Browning said. "Follow me!"

Into the shopping basket went three toothbrushes, three combs, three tubes of toothpaste and three cakes of soap. "Now follow me to the toy counter. I'll read. You pick out the toys." The children found little boats, small airplanes, three boxes of crayons, three rubber balls, and three shiny yo-yos. "Don't forget the balloons!" cried Georgia.

"Follow me again," said Mr. Browning, who seemed to be enjoying the shopping as much as the children. He stopped at the cash register and rang up the sales.

"Do we have enough money?" Tony wondered. "That will be $3.15," said Mr. Browning. Tony handed him the three crisp dollar bills, and Miss Davis paid the fifteen cents.

The fun began when they returned to school and started to pack the boxes. First they made three piles with one each of the things they had purchased.

"Big things first!" reminded Miss Davis as she watched them pack. "Little things will fit in the empty places." At last everything was in place. On the top of each box went a card:

FROM YOUR FRIENDS
LOWELL SCHOOL—GRADE 1
MIDDLETOWN, OHIO

"Will we ever know who gets the boxes?" asked George.

"It will be fun to watch for a letter," said Tony.

TABBY

The Story of Four

(Refer to page 15.)

One day Janet missed her big striped cat. She looked and ooked. She called and called. But Tabby did not come. At last anet went into the garage, and there in the corner in an old basket lay Tabby. Now what do you suppose Tabby had with her? There in the basket were some tiny baby kittens.

Tabby purred and blinked her eyes while Janet smoothed her oft, cuddly fur. The kittens made weak crying sounds and nuggled close to their mother. How many kittens did Tabby ave? Janet counted: "One, two, three, four." Yes, there were our kittens. There were two striped kittens exactly like Tabby. hey looked like twins. Next, Janet discovered one kitten that ad two black front paws. She exclaimed, "Boots! That's what ou have—a pair of boots! That's what I'll call you." Now the ourth little kitten was curled up like a furry ball. He was white s snow. Can you guess what Janet named him?

Janet called to her mother. "Come, Mother! See what Tabby as!" Mother seemed as pleased as Janet. "I think Tabby wants be alone with her babies, now," said Mother. "But you may ring her a saucer of milk."

Ten days later the kittens' eyes were open. They looked just they do here in the picture. Whenever anyone but Janet me to feed them or play with the kittens, mother Tabby would arch her back and meow fiercely.

Every evening after school Janet played with the baby kittens. She was happy and excited when Mother told her she could keep the family of kittens as long as she helped Tabby care for them.

THE SURPRISE PACKAGE

The Story of Five

(Refer to page 37.)

"Come here, Raymond! See what the postman left for you," called Mother from the doorway. "It's a present from Grandma Bell."

Raymond came running into the living room. There on the floor was a big brown package.

"What can it be?" he exclaimed excitedly as he ran for the scissors to cut the string.

Snip! Snip! Snip! He tore the brown paper from the box, but there was still another string tied tightly around the cardboard box. One end was loose, and in his excitement Raymond tore it open and pulled out a box. When he opened that box, there was a little blue automobile. He tipped the box again and out came a second box. This one had a bright green sedan in it. Once again he shook the box. Three more boxes rolled out. One held a shiny black car, another was a tan station wagon, and the last one was a little white sports car.

Raymond lined the cars up on the floor. "One, two, three, four, five," he counted.

"There is something else inside," Mother said, rattling the box.

At once Raymond reached into the box and pulled out a cab and trailer. Quickly he fastened the trailer to the cab and, noticing the spaces in the trailer, said, "Now, I see what I have. It's an automobile carrier. I've seen them on the highway."

Mother watched him as he played. One by one he fitted each car into the space where it belonged. In no time at all, he had all the cars in place. There were three on the top deck and two underneath on the bottom deck.

"Good-bye! I'm off," he shouted as he raced through the living room into the kitchen. "I'm going to see if George is home and ask him over to play with me." George was his best friend. Their backyards were next to each other.

"Why not play out on the sidewalk?" suggested Mother, as he returned with George. For several minutes the boys took turns running the carrier back and forth, back and forth on the sidewalk. Then one by one, the smaller cars were taken down and rolled along. Finally each boy took two cars—one in each hand—and starting from opposite ends of the walk, they pretended they were on a busy highway.

"Beep! Beep!" George shouted loudly as they passed.

"Beep! Beep!" Raymond shouted back.

About that time Jerry, who was in the second grade and lived around the corner, came by. He stopped and picked up the white sports car from the carrier.

"Well, what do you know? A piggy-back! Say, these strips underneath are to be used for riding the cars onto the carrier. Look, watch me load this white car!" He put the strips in place and slowly rolled the white sports car inside.

Jerry suggested, "George, pretend you live in Glenvale, and I'll deliver some new cars to you. My daddy gets his for the shop that way. Raymond, you live one hundred miles down the highway, maybe at Tipton; my Uncle lives there. I'll bring cars to you, too. How many do you want?"

"I'll take four," shouted George. "I can sell them fast."

"Good, then I'll deliver the one that is left to Raymond."

"All right, but let's take turns being the auto-carrier driver," said Raymond.

Carefully they lined up the cars—one, two, three, four, five. The driver backed the carrier up the walk. George and Raymond pushed two cars onto the lower deck. They attached the strips and rolled the other cars to the upper deck.

"All set?"

"Where is Glenvale?"

"Let's make believe it's over by the rose bush."

"Where is Tipton?"

"It's at the end of the walk."

"Get in your places! Here I come."

"Drive carefully! I don't want my new cars scratched," Raymond said.

All afternoon the three boys played. They took turns driving the carrier. One time George ordered five cars, and when they were delivered, there were none left on the carrier.

Another time when Raymond ordered three and George ordered two, the carrier returned without any cars. When it was Jerry's turn he ordered one, and Raymond said, "I'll take all you have left." How many did Raymond get?

The boys played until their mothers called them home.

When bedtime came, Raymond put all the cars in the carrier and placed it on the rug beside his bed.

When Mother came in to say goodnight, she held up a piece of canvas, "Look, I found this when I threw the box away. A real carrier driver tries to keep his cars shiny and new."

"Then I will, too. Let's cover the cars. You never can tell, we may have a heavy rain tonight," said Raymond, with a wink as he turned out the light.

Mother said, "Tomorrow I will write to Grandma Bell to tell her how much you are enjoying your surprise package."

A DAY AT THE LAKE

The Story of Six

(Refer to page 54.)

Gordon stretched and yawned as the clock began to bong. One! Two! Three! Four! Five! Six! It was six o'clock; time to get up for the fishing trip. Reaching out, he pulled the covers off his sleeping cousin. Dean groaned, got sleepily out of bed, and started to dress. Dean said, "Let's race," but neither boy was finished when Father stuck his head in the door and called, "The fish are biting. Let's go!"

Across the hall, Gordon's sister, Nancy, and his cousin, Diane, were already awake and dressed. When breakfast was over, there was packing to do while Mother and the girls made the lunch and cleaned up. There were bags to be stowed in the trailer for six people. "One, two, three, four, five, six," said Gordon as he carried them out to the car. Then Dean and Father carried out the sleeping bags. How many do you suppose there were?

Underfoot, Tinker, their wire-haired terrier, anxiously watched the packing. "Don't worry, old Tink, we won't leave you behind," laughed Gordon.

Mother, the girls, Tinker, Father, Dean, and Gordon were ready to go. All except Tinker sang as they rode off, "It's a good sunny day, and we're off to stay."

Before long, there was the lake stretched out before them—beautiful, blue, and very still. In the distance were several small fishing boats. On their right was a perfect spot for camping.

Father stopped the car, and Tinker jumped out, sniffing the air. While Mother spread the lunch and the children explored the camp, Father rented a boat. Luckily, there was one boat still at the dock. Gordon counted. There were already five boats on the lake. Their boat would be the sixth.

Tinker didn't care for boats, so only Father and the two boys rowed out on the lake after lunch. They sat quietly in the boat anchored out by the cattails. Three fishing poles hung over the edge of the boat, and three baited hooks lay in the water. Soon Father felt a jerk and reeled in his line. "A beauty," he exclaimed as he put the fish on the string in the front of the boat.

Then, there was silence. Only a flock of geese made noise, as they circled overhead. Suddenly, Dean and Gordon each cried, "I've got a fish!" And so they had! Father helped Gordon, but Dean wanted no help at all and almost lost his fish before he landed it.

Father counted, "That makes three fish, half enough for supper. There is one for Mother, one for Nancy, and one for Diane. How about catching three more fish, one for each of us?"

(Continued on page v, following 160.)

(Continued from page iv.)

But the fish didn't nibble on the hooks. Just as they were ready to shove off to a new fishing spot, a friendly fisherman rowed by and said, "Keep going around the bend. I got my limit there in less than an hour."

"Thank you," said Father.

Hungry fish nibbled at the bait. Father pulled in two more fish and Dean reeled in a big one. Three more fish were fastened to the line. Now there were six, a fish for each person.

"I caught one that long," said Gordon as he came within hearing distance of Mother, Tinker, Diane, and Nancy. He stretched his arms out as wide as he could.

"A fish story," laughed Mother, but when she saw half a dozen fish on the string, she was really pleased.

Who wouldn't agree with Gordon as he ate the fish cooked over the campfire? "This is the most fun I've ever had. Let's stay here forever."

KARI'S CROSS-COUNTRY TRIP

The Story of Seven

(Refer to page 85.)

Kari was an only child. Kari's father was a school teacher. He was going to take a new job far, far away. "Out west," Daddy said. Kari's mother had been busy many days getting ready to make the trip.

The night before they left, Aunt Jo came over with a box about *this long* and *this wide* (show with your hands). "Look," said Aunt Jo, "I brought you a good-bye present. It's special and different. You may take the lid off the box, peek in, and even count the packages—but that is all. Only one package is to be opened each day of your journey." Kari's eyes shone.

What a surprise! There, under the tissue paper, were all sorts of pretty packages tied with ribbons of every color. "May I lift hem out of the box to count them?" Kari asked. Before anyone could answer her, she was taking packages out. Some were ound and squashy; some were thin and narrow; one was a very iny box; and one smelled nice. "One, two, three!" Kari began, four, five, six, seven! Seven one-a-day packages. Will our trip aken seven days, Daddy?" asked Kari.

"About that long, I guess, if we stop to visit Uncle Jim," re-lied Daddy. "It will take about a week."

Mother went to her purse, pulled out a small calendar and pencil, and said, "Here is a calendar and a pencil that will fit nto your purse. See, here are seven days; seven days make a eek, so each time we open a package we will mark off the day n the calendar. When the seven days are over and all the pack-ges are opened, we should be at our new home. Now thank Auntie Jo, and then we must go to bed so that we can get an early start tomorrow."

The next morning Kari got into the car. She sat between her daddy and mother. She put the box on her lap. Out into the country they drove. Kari and her parents felt sad to be leaving, but they were glad to be on their way to a new home.

About ten o'clock Daddy stopped for gas. "Would this be a good time to open a package?" asked Kari. "Why not?" said Mother. "Which one will it be?"

Kari felt, shook, smelled, and looked at the packages. Finally, she opened the long, thin box, and what do you suppose was in it? (Children guess.) It was a box of paper dolls! Kari tried some of the dresses on the dolls very quickly before she put the other packages back. "One, two, three, four, five, six left. How I hate to wait for tomorrow," thought Kari. While Daddy wrote down the amount of gas he bought, Kari pulled out her calendar and marked off the first day with an X. (Show X on the chalkboard.)

The second day the family slept a little late and started driving later, so Kari didn't open the second package until almost lunch time. It was a long box. As she untied the blue ribbon, she said, "Who wants to guess this one?"

Daddy said, "I guess it's a sandwich for me. I could eat one that big."

"It's red and white," said Mother, peeking through the tissue paper. Now what do *you* think it was? (Have the children guess.) It was a red and white jump rope!

Daddy bought sandwiches, and they stopped at a roadside park to eat. Kari practiced jumping rope and amused herself while Daddy and Mother rested in the sun. She almost forgot to mark the calendar. When she did mark it, it looked like this. (Show on chalkboard X $\cancel{X}$ 3 4 5 6 7.)

The next morning Daddy announced, "If everything goes well, we should be at Uncle Jim's house tonight."

"Oh, good! Drive fast! Let's hurry!" replied Kari.

"Not *too* fast. Let's make sure we get there," cautioned Mother.

"I have so many things to see today," said Kari, talking to herself. "I believe I'll open my surprise package before we start." This time she selected the squashy package. It looked brown and furry as she opened it, and it wiggled a little. "Is it alive?" she wondered. (What do you think it was?) Quickly she tore off the paper. It was brown, furry, and it did wiggle a little, but it was only a bean bag in the shape of a monkey with a funny, funny face. Kari marked her calender and counted her marks. "Three packages opened and four packages left with four days to go. That makes everything right."

Daddy said, "That's right, we'll be about halfway there when we get to Uncle Jim's house, for he lives almost in the middle of the United States."

Whenever Kari looked at the brown, furry monkey bean bag, she laughed at his funny, funny face. It felt soft and smooth in her hand. Daddy drove late that night, and the next thing Kari knew, Uncle Jim was holding her and saying, "How is my little girl?"

Daddy said, "It's good to be here, Jim. We're all tired and need a day to relax."

Uncle Jim said, "Come right in. We can take care of that."

The next day Kari forgot her surprise box until almost bedtime. "How could I remember it while I was having so much fun with Uncle Jim?" Kari smiled. She picked up the package that smelled sweet.

"Just the thing for a tired little girl's bath," said Mother when she saw the tiny box of soap and lotion. "Let's say goodnight to everyone and try this on a dirty face." (Do you know what Kari forgot?) [to mark the calendar]

After a night of rest, the family started out early. About nine o'clock Kari peeked into the box. "Something smells good. I hope it's food," exclaimed Daddy. "I'm hungry!"

Kari sniffed all the packages. Sure enough, one did smell like food. When she opened it, what do you think she found? Cookies! Cookies filled with nuts and raisins.

"Now that's what I call a real package," said Daddy, as he nibbled on a cookie.

This time Kari remembered to mark her calendar for two days. (Do you know why?) [She forgot to mark it the day before.]

"My!" said Kari. "Five packages opened and two to go. We are traveling fast, aren't we?"

"Tomorrow we won't go as far. We will be in the mountains and have to drive slower," said Father.

As Kari dressed the next morning, Mother said, "Why not open a package before breakfast?"

"Eenie, meenie, minie, mo," Kari began. She finished by pointing to the big package. "Just my size," she exclaimed, as she opened the box.

"Just the thing for a day in the mountains," said Daddy.

"How did Aunt Jo know I would need mittens?"

"What a nice Aunt Jo," said Mother, as she looked in the luggage for warmer clothing.

"My nice surprise box is almost empty," said Kari. "Only this tiny package is left. May I put it in my purse and throw the empty box away?"

"Yes, you may," said Mother. "But haven't you forgotten something?"

"No, I haven't. See!" said Kari, as she showed Mother the calendar. She had made six marks with only one day left to mark. "Six packages and one more package to open means the end of the journey," said Kari.

The next day after lunch they saw a sign which read: LEESVILLE 5 MILES.

"That's it! That's where we're going," said Daddy.

"Our new home," said Mother excitedly, "and the end of our journey."

"Oh, my package! I almost forgot. This is almost the end of our trip," shouted Kari.

Quickly she opened the box. First there was a tiny note which Mother read aloud. It said, "Wear this always and think of me. Love, Auntie Jo." Kari picked up a shiny chain and on it was a pretty gold heart that could be opened. Inside was a picture of Aunt Jo.

"Oh, Aunt Jo, I will! I will! I will wear it and I will think of you every day," said Kari, as Mother fastened the chain around Kari's neck.

THE SHOE PARADE

The Story of Eight

(Refer to page 101.)

It was Saturday morning. Mrs. White was taking her family to the shoe store to get new shoes. Only that morning Mr. White had said, "Here is enough money to buy each of the four children a new pair of shoes. Get good shoes."

Now it was ten o'clock, and everyone was ready. The White family lived in a small town. They could walk to the shoe store, for it was only five blocks away. As they walked down the street on this lovely Saturday morning, Gary, the oldest boy chanted:

"Two, four, six, eight!
Who do we appreciate?
Our Daddy!"

Mother pushed two-year-old Raymond in his stroller. He acted as if he knew what the trip was all about. Janet, age six, and Johnnie, age four, sometimes ran ahead and sometimes lagged behind. But in no time at all, they were at the shoe store.

Mr. Howard, the owner, looked up as they entered. "Good morning, Mrs. White. You're out bright and early this morning. What will it be today?" he asked.

"New shoes for all my children!" said Mother.

"Fine! Where shall we begin, with the oldest or the youngest?"

"The littlest one is first," said Gary.

"Yes, I'd like a pair of brown and white oxfords for my littlest one," replied Mother. "Be sure to give us shoes large enough for his feet to grow."

"Yes, yes indeed!" said Mr. Howard, as he measured Raymond's foot and put new shoes on his feet. He smiled as Raymond admired them in the mirror.

"That's one," said Janet, who was in the first grade.

"Right!" said Mr. Howard. "Now we have three more to go."

"Oh, no," said Gary. "That's two, and we have six more to go."

Mother winked at Gary to let him know she understood his joke. Do you know what he meant?

"Who's next?" asked Mr. Howard.

"Me," cried Johnnie, who was the four-year-old.

Quickly Mr. Howard measured Johnnie's left foot.

"He plays outdoors from morning till night," said Mother. "A pair of sturdy brown oxfords is what he needs."

"I have just the thing," replied Mr. Howard, as he ran his fingers over many boxes on the wall. Soon he pulled out a pair of brown shoes. Johnnie tried them on.

"Can you wiggle your toes? Do they fit?" asked Mother.

"May I keep them on?" replied Johnnie.

"Daddy always says it is important to wear good shoes every day," said Mother.

"That's two," said Mr. Howard, "and two to go."

"No, it's four," said Gary, "and four to go."

Mr. Howard got the joke this time. He smiled and said, "It must be the little girl's turn now."

Quickly Janet took off her shoe and said, "I know what I want. My shoes must be new and black and shiny." Mr. Howard looked at Mother.

"Yes, we can get a pair she likes. Janet jumps rope so much she will probably need another pair in a month. But I guess all ittle girls like pretty shoes."

Mr. Howard measured her foot and said, "You're really growng Janet."

The pair of shoes he tried on her were new and black and hiny just as Janet wished. She looked around the room. She tood in front of the mirror. She felt pleased, as she stopped near he door and watched the people pass by. She hoped they would otice her.

Gary said, "I'm the only one left. Can I get what I want?" All year Gary had wanted a pair of boots, the kind his Uncle Art, who lived in the mountains, wore. Mother wasn't sure she wanted him to have a pair of boots, but Daddy said that he wore a pair when he was Gary's age, and that seemed to settle t.

Gary looked grownup, as he tucked his jeans into the top of is boots and strutted about the store.

When Mrs. White paid Mr. Howard he gave Raymond, ohnnie, and Janet each a balloon. He knew better than to offer ary one.

"Come on," called Mother.

Each of the three oldest children carried their old shoes in a box. Mother placed Raymond's box in the bottom of the stroller.

Out on the sunny street, Gary took charge. "Line up!" he said. "I'll be the leader. Janet, you're next, then Johnnie, and Raymond. Let's have a shoe parade. Left! Right! Left! Right! See the shoe parade! Four children here! Four children there!" Everyone turned to watch the children, as they each watched their reflections in the store windows. Mother walked leisurely behind pushing the empty stroller. She felt very proud of her children.

"Two, four, six," but before Gary reached eight, Raymond was getting into the stroller again.

"Two down, and six left to go!" cried Janet as they turned the corner. Soon John dropped behind to walk beside Mother. By the time they turned in at their own gate, Janet was walking much slower and Gary was alone.

"What a funny parade. Only two shoes made it," said Gary.

Once inside the house everyone sat down on the floor. Without a word from Mother, they took their old shoes from the boxes and put them on. They put their new shoes in the boxes. They lined the boxes up against the wall and ran outside.

Once outside, Gary began,

"Two, four, six, eight!
What do we appreciate?"

"Your old shoes!" said Mother as she tied Raymond's shoes, and let him out the door.

LUCKY LOUIE JOINS THE LITTLE LEAGUERS

The Story of Nine

(Refer to page 119.)

Louie was six years old, but he was a big boy for his age. Louie's favorite game was baseball. When he was little more than a baby, he played ball with walnuts, potatoes, or anything he could find that was round. Before he started kindergarten, he liked to go by the schoolyard and watch the boys play ball. Often a neighborhood boy would put a mitt on his hand, and Louie would squeal with joy, as he tried to play catch. His kindergarten teacher had told him he was one of the best ball bouncers in the room.

Now Louie was almost through the first grade, and summer vacation was coming. His Uncle Louis had invited him to come to Spring Valley Ranch, and he was going next Sunday. Uncle Louis' letter had said, "I have a surprise for you."

Uncle Louis was like that—full of surprises. Louie was glad he had been named for his uncle because he wanted to be just like him when he grew up. He also liked his cousin Timothy, whose nickname was Happy. Happy had joined the Little Leaguers last year, and Uncle Louis said that they'd make a regular ballplayer out of him some day.

When Louie arrived at the ranch, Happy ran to meet him. He shouted, "Did Dad tell you about the surprise?"

Louie said, "He sure did! Uncle Louis, may I have the surprise now? Please, Uncle Louis!"

"We should wait until after lunch, Louie. But you've been waiting a long time, so come on!" he said as he led Louie into Happy's room. There, spread out on the bed, was—a miniature baseball uniform complete with cap and socks!

"Oh, Uncle Louis!" Louie exclaimed. "Is this for me?"

"It is, if it fits," said Uncle Louis.

Louie slipped out of his shirt and trousers and into the baseball suit fast as lightning.

"It fits," he shouted. "It fits!"

He could scarcely wait until the family had finished lunch so that he could play catch with his cousin.

"Tomorrow the Little Leaguers will practice in our pasture. Maybe they'll let you be the mascot," said Uncle Louis.

"What's a mascot?"

"Well, it's something or somebody who is supposed to bring good luck to the team."

Early the next morning, Happy and Louie were at the ballfield before anyone else. Louie tried to walk exactly like Happy. In fact, he even stepped in his tracks to see if it made any difference.

"How many are on a team?" asked Louie.

"Well, if everyone comes, there will be nine."

"You are one, so that means eight more should come." Louie picked up a stick. On the ground he made nine marks. He drew a line through one. They looked like this: X | | | | | | | |. (Draw this on the chalkboard.)

Before long, two bicycles appeared on the hill and Louie said, "Now we have three players." He crossed off two more marks and counted those left. "Six more to come." Now the marks looked like this: X X X | | | | | |.

Happy asked, "What are you doing—keeping score?" But before Louie could reply, two more Little Leaguers came across the field.

"Check them in," said Happy.

"Four boys yet to come," said Louie as he crossed off two more marks. Now it looked like this: X X X X X | | | |.

Just then Mrs. Roseman drove up in a station wagon on her way to the market and left the twins.

"We can't start practice until two more arrive," said Tommy. "But maybe seven of us could play "One-Old-Cat" until the others come." ("One-Old-Cat" is a baseball warm-up game in which the batter runs to first base and back after hitting the ball. If the ball is returned to homeplate first, the batter is out.)

Louie wondered what "One-Old-Cat" was as he checked off two more players. He saw that only two more boys were needed. His marks looked like this: X X X X X X X | |.

The boys played for several minutes. Even Louie was allowed to chase the balls that went far afield.

Suddenly, Uncle Louis' deep voice was heard, "Boys, I just had a telephone call from Mrs. Winfield saying her boys have stomach-aches. As your manager, I guess I'll have to practice with you and maybe my namesake can be ninth man."

"What! Him?" cried several of the boys. "Who wants to play with little kids?"

But Louie had already checked off the last two marks. Now they looked like this: X X X X X X X X X.

"Nine men make a team," said Uncle Louis. "Come here, Louie!" He raised his arm for Louie to walk under. "You see he is almost half a man. Anyway what this team needs is a good mascot," he said convincingly.

"Play ball," called the captain. He really meant, "He may try."

Now the boys really began to practice. Uncle Louis was a real ball player, as well as manager. He showed the pitcher how to improve his skill. He taught some of the boys how to grip the bat properly. He encouraged the timid ones and helped all of them gain confidence.

Louie kept one eye on the ball and one on his Uncle.

About five minutes before practice broke up, Louie saw a ball coming straight at him. He reached up, and caught the ball, and held it close to him.

"Throw it," cried Happy, and Louie did. As he threw it, he fell face downward in the dust.

"Good boy!" cried Uncle Louis, as he helped him to his feet and brushed off the dust.

"Not bad for a little guy," said the captain.

"How about it fellows, do we have a mascot for Saturday's game or not?" asked Happy.

"Sure!" cried the others.

"You know, I think he'll bring us the luck we'll need," smiled Uncle Louis. "In fact, I think I'll change his name right now from Louie to Lucky. How about it, Lucky, do you want to join the Little Leaguers?"

Quickly Lucky counted on his fingers—five days left until Saturday. Yes, he could wait. What better thing could happen to a six-year-old on vacation than to become a mascot for the Little Leaguers?

Lucky was going to be a good name, all right.

2 3 4 5 6 7 8
63 64 65 66 67 68

1

Purpose

To build an appreciation of and a broad interest in arithmetic, to be aware of manipulative materials, and to show the use of arithmetic in daily life.

Every teacher should strive to have an arithmetic corner in her classroom. The opportunities it presents for building an interest in and an understanding of arithmetic are limited only by one's imagination and ingenuity.

A shelf or two, a ledge, or a table will suffice. Many of the things that should be included are inexpensive; others may be secured from the variety store or a house specializing in educational materials. Often, parents will donate materials.

It is recommended that the teacher begin such a corner before school opens. While it is most desirable that these objects be changed from time to time, it is important that the teacher preview the items with the children to relate the objects to their use.

Procedure

Let the children discuss in a general way every item in the picture on page 1. Relate each item to its functional use.

Do you see the clock? Put an X on the clock. Be sure all children can make an X. **Why are clocks important? Can we learn to tell time this year?**

What is the object or thing next to the clock? [scales] **Put an X on the scales. Do you know of other kinds of scales?** Discuss scales.

If you have been to the grocery store with your family, you know what the next object is. [cash register] **What is kept in it?** [money] **Draw a ring around what is usually found inside the cash register. Why is it important to know about money?** Discuss.

The first thing on the next shelf is a game about numbers. Do we have one like it? Why is it important to learn about numbers?

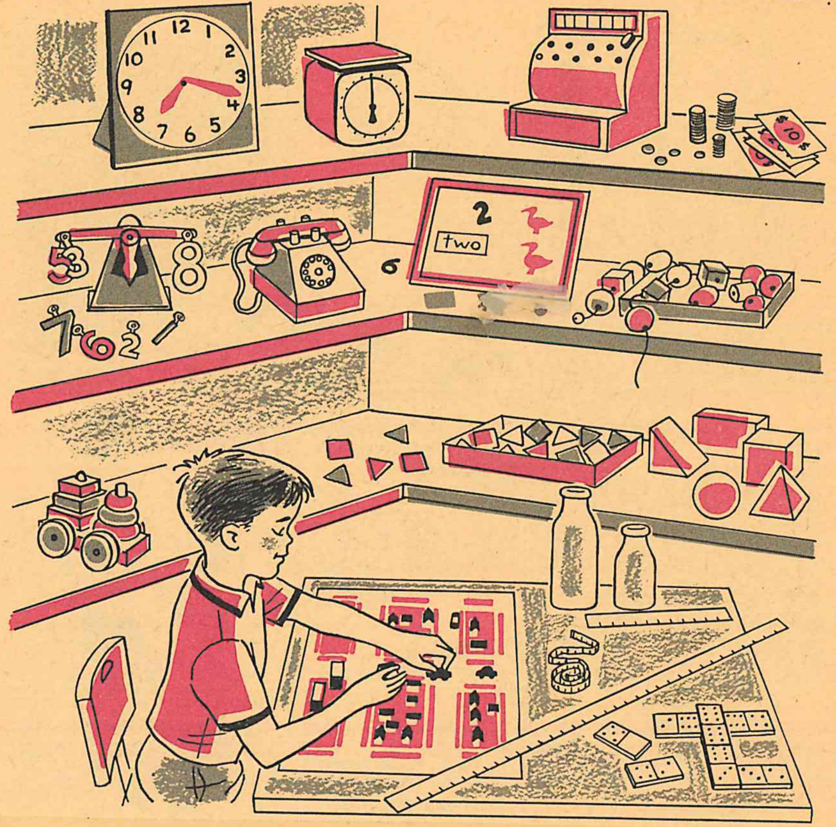
Point to the telephone. Could you telephone if you didn't know how to read numbers? Here are a few telephone numbers I know—HI 4-4211, 416-6453. Do you know your own telephone number? Would you like to learn how to telephone this year?

Do you like to tell stories using the flannel board? We are going to have many number stories this year.

Have any of you played with a toy like this next one? Put a ring around it. What is it?

Look at the third shelf. What shapes do you see in the first toy? How many square blocks do you see? What is the shape of the wheels? How many other round shapes do you see in this toy?

In the Arithmetic Corner



Some of you may have a game like the next one. It is fun to make designs. Do you know the shapes of these paper cutouts? [triangles and squares]

Now look at the shapes of the objects at the end of the shelf. Who would like to name them? Draw a ring around each shape as I tell about it. Begin with the rectangle.

Now let us look at the table. What do the little houses and buildings remind you of? It is a map on a table. Perhaps we can make our own map like this one. It could show where we live.

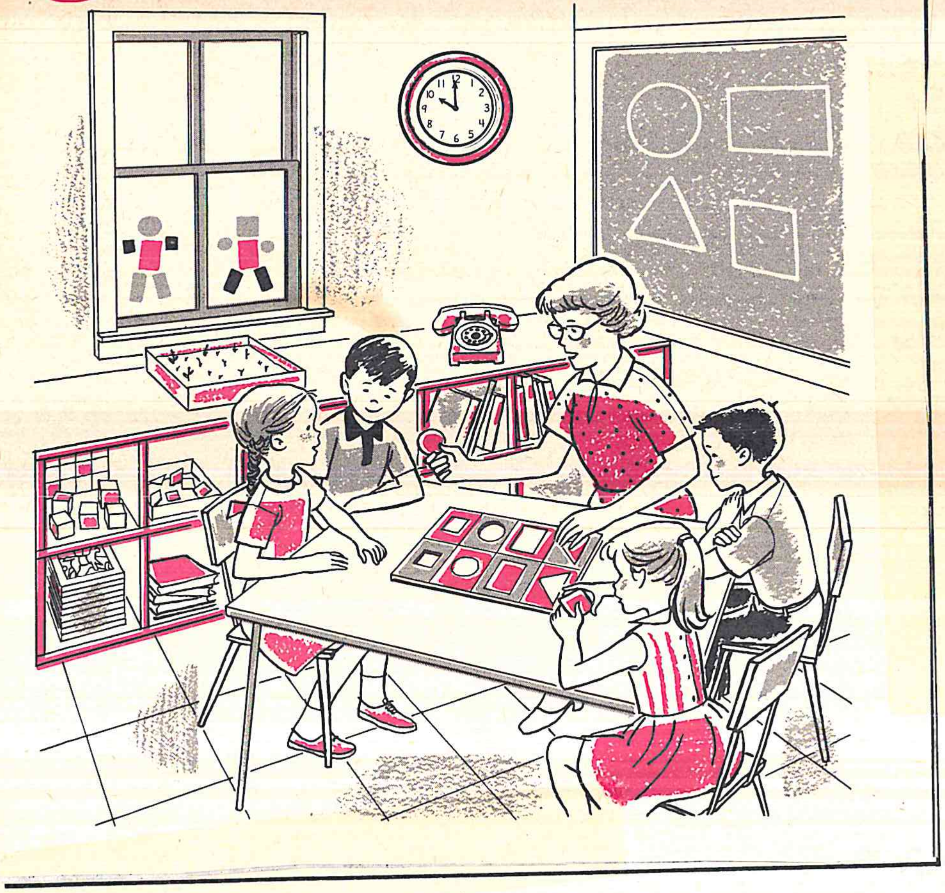
Find something that milk comes in. How much milk do you think was in each bottle?

Put an X on the things we might use if we wanted to know how tall we are. Discuss how the tape measure, yardstick, and ruler would be used.

Do you know what the game is called? [dominoes] **Could you play dominoes without being able to see groups of dots?**

Put a red ring around anything you see on this page that is found in our arithmetic corner.

2 Shapes in the Classroom



2

Purpose

To help the children become aware of shapes of objects in the classroom, to learn that shapes have names.

Vocabulary

Square, circle, triangle, rectangle.

Materials

A large square, circle, rectangle; envelopes containing different shapes made from colored paper; parquetry blocks; a "treasure box" full of tagboard or oak tag objects of different shapes.

Developmental Activity

I want to show you some things to see if you recognize their shapes. Hold up the circle. What shape is this? [It is round.] **We say it is a circle. Find something in the room that has the same shape.** [clock] **Yes, we say the clock has a round face, or it is like a circle.** Have a youngster put his finger on the demonstration circle and run his finger around the edge. **You come back to where you started from. You can always do this with a circle. Does anyone know something else that is this same shape?**

Now let us try something else. Hold up the square. **What shape is this?** [It is a square.] **How many corners do you see?** [4] **How many sides?** [4] **Are the sides the same size?** [yes] **If we remember these things—4 corners, 4 sides, each the same size—we will always know what a square is.** Ask a child to put his hand into the "treasure box" to see if he can find a square without looking.

The next shape looks like this. Hold up the rectangle. **What does it remind you of?** [square] **It does have 4 corners like a square. How is it different from a square?** [2 sides are longer than the other 2 sides.] **This shape is called a rectangle. Everyone say it—rectangle. Now look for something in the room that is like it.**

Hold up a triangle. Does anyone know the name of this shape? [It is a triangle.] **Can you find something in the room like it?**

Procedure

Now open your books to page 2.

Isn't this an interesting room? Look! The teacher and children are doing what we have been doing. They are talking about shapes, too.

Take your pencil and draw a line from a square in the puzzle on the table to something like it on the chalkboard. Now draw a line from a square on the table to something like it near the window.

Now draw a line from a circle in the puzzle to something the same shape on the chalkboard. Draw a line from the other circle on the table to something else that is round.

Find something within the room that looks like a rectangle. Draw a line from the rectangle on the chalkboard to another rectangle in the room.

Continue discussing the shapes of objects on the page as long as interest is maintained.

Extended Activity

Give the children envelopes containing assorted shapes. Some children may wish to have paper and paste; others may only wish to play with the designs. Give some children scissors. Someone may discover that one-half a square can become a triangle.

Give some of the parquetry blocks for experimentation.

Give each child an envelope of paper shapes to take home so that he may demonstrate to his parents what he learned today.

3

Purpose

To extend awareness of shapes found within a child's school environment, to realize they have a functional use, and to build a readiness for understanding fractional parts.

Vocabulary

Square, circle, one-half, one-fourth.

Materials

6″ squares and circles 6″ in diameter to use in discovering how parts can be folded from a whole. Pipe stem cleaners for figures.

Developmental Activity

Take the children outside to explain the markings on the playground surface. Ask them why they think all the white marks are drawn on the blacktop. For example, **Why do you think these straight lines are here?** Listen for reasons the children give.

Why are there squares here? Do you see any other squares? Do you know what the circle might be used for? [The circle and other shapes on the playground were put here to make it easier for us to play games.]

If we select a shape on which we could all play a game together, what would it be? [the circle] **Suppose we all start here.** Select a point and walk around the circle. **I will call on someone who will choose a game to play.**

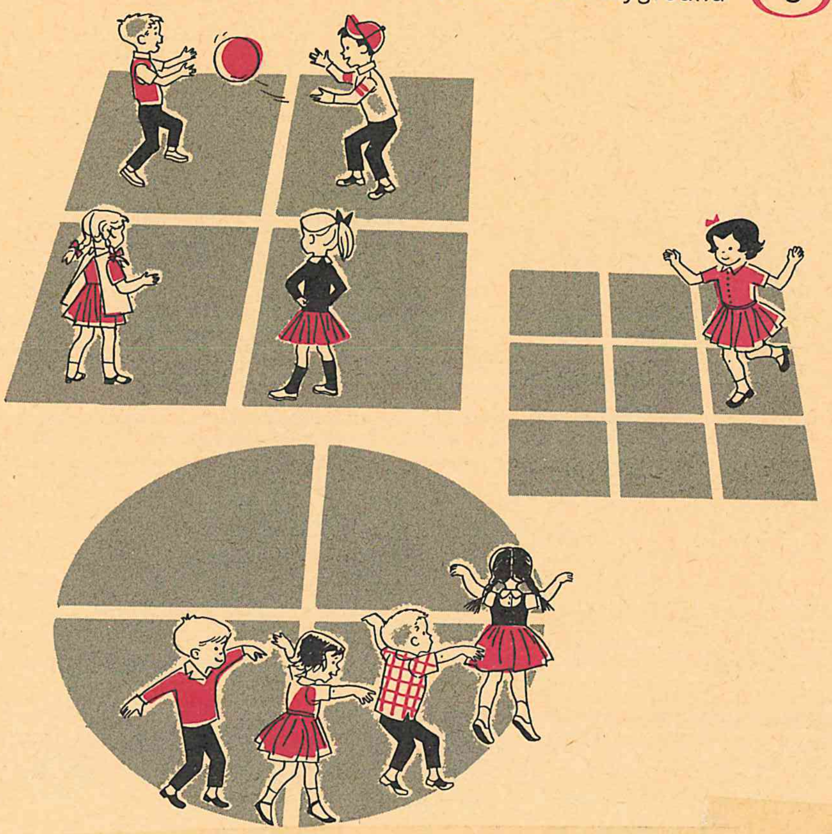
Procedure

On returning to the classroom, ask the children to open their books to page 3.

Point to the game at the top of the page. What are the children playing? How many small squares do you see? [4] **How do you know each is a square?** [It has 4 corners and 4 sides, each the same size.] **The big square is divided into smaller squares. We say there are 4 squares in 1, or that each part is one-fourth of the large square.**

Now look at the picture of the girl hopping. She is playing a game. How many squares do you see across? [3] **How many squares do you see counting down?** [3] **How many squares do you see all together?** [9] **Can you think of a name for this game?** [Square Hop Scotch, Nine Squares]

Now look at the game at the bottom of the page. What shape is this? [a circle] **Name some games you know that are played in a circle. This circle is divided. Do you know how many parts it has?** [4] **Count them. We say each part is 1 out of 4 parts or one-fourth of the circle.**



Extended Activity

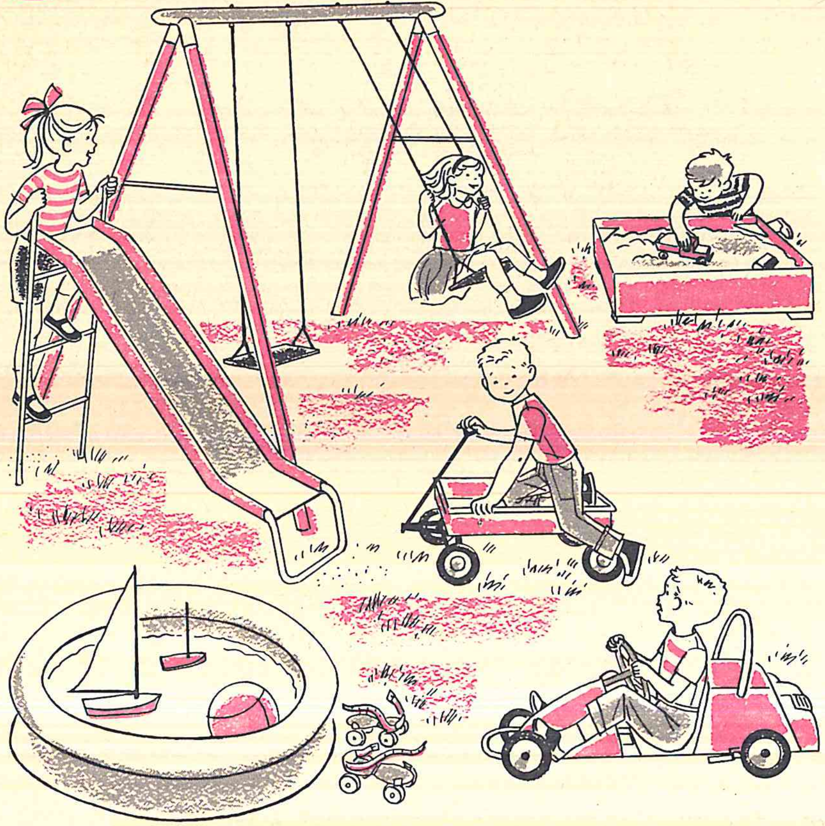
Give each child a circle cut from newsprint or manila paper. The circles should be no smaller than 6″ in diameter. Let the children experiment to see if they can divide the circle into 4 parts as shown in the picture.

Give the children three 6″ squares of newsprint. Let them experiment to see if they can divide one square into halves. Have them try to divide another square into 4 parts, and another into 9 parts.

Give them pipe stem figures and let them demonstrate how Nine Squares might be played.

Review with the children the terms "circle" and "square," so they will call these forms by their correct names.

4 Shapes in the Backyard



4

Purpose

To review shapes (triangle, circle, rectangle, and square) by relating them to toys familiar to most children.

Materials

Paper 12″ x 18″ for drawing pictures or mounting pictures.

Developmental Activity

Ask the children to tell about toys they use outdoors. Each toy might be listed on the chalkboard to help get variety without duplication.

Spend a few minutes discussing toys that have wheels (wagon, tricycle, bicycle, roller skates, and scooters). Also, mention the shape of wading pools. Talk about the shape of a wagon, sandbox, and slide.

Procedure

Now open your books to page 4.

Today we are going to talk about shapes in the backyard. Perhaps you have some things at home like those in the picture.

What shapes can you see in the slide?

What shape are the swings? What shape are the seats in the swings? What shape is formed by the end supports? Can you see a small triangle within each large triangle? Put a mark on all the triangles you see. [4]

Now look at the roller skates. How many skates do you see? [2] **How many skates make a pair? How many wheels are there on each skate?** [4] **How many wheels on both skates?** [8]

Do you see something else with wheels? [wagon and racer] **How many wheels are there on each?**

Find something else that is round like a circle. [wading pool] **Draw a line under everything that looks like a circle.**

Now do you see something square? [sandbox] **Draw a ring around it.**

The next time you play see how many shapes you can find in the toys.

Extended Activity

Give each child a 12″ x 18″ piece of paper. Show how to fold it into fourths. In each fourth ask children to draw some toy they have or would like to have. Have them mark in their pictures as many shapes as they know about. Display these pictures on the bulletin board for discussion purposes. Later put the papers in each child's scrapbook or arithmetic portfolio to be taken home.

Bring to school pictures of toys from magazines and catalogues to make a bulletin board of toys. Let each child tell about shapes in his own toys and refer to the shapes by name.

Purpose

To develop and extend the recognition of many kinds of clocks and watches, and to provide an opportunity for children to share their experiences relating to time and the clock.

Vocabulary

Watch, clock, o'clock.

Materials

Magazines, jewelry catalogues, pictures of watches and clocks.

Procedure

Open your books to page 5. Look at the picture at the top of the page.

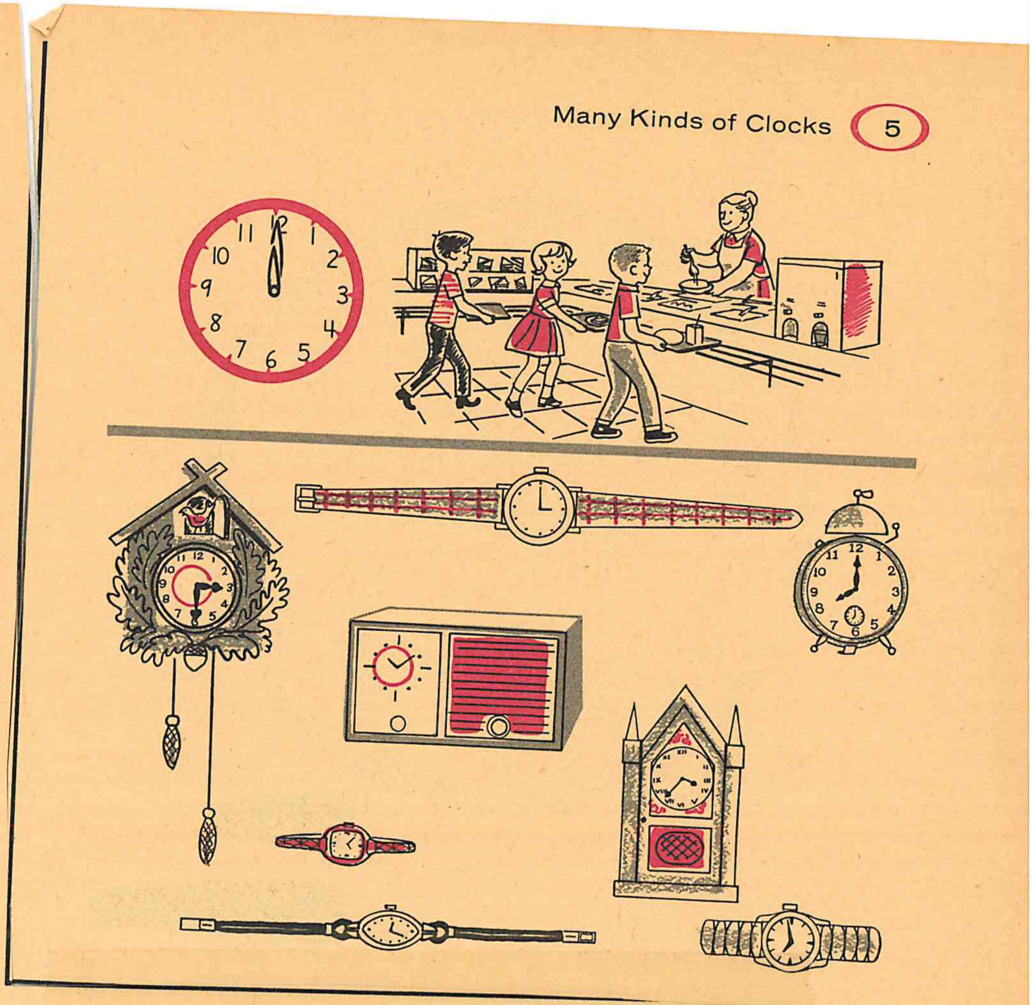
What do you think the children are getting ready to do? What tells them it is time to eat? [clock] **Does this happen every day?** [yes] **Some of us go to the cafeteria. Some of us eat in our classroom, and some of us go home for lunch. We say, "It is 12 o'clock and time for lunch."**

Now look at the clocks and watches at the bottom of the page. Are all the watches alike? Let us draw a line under the ladies' watches. How are they different from the other watches?

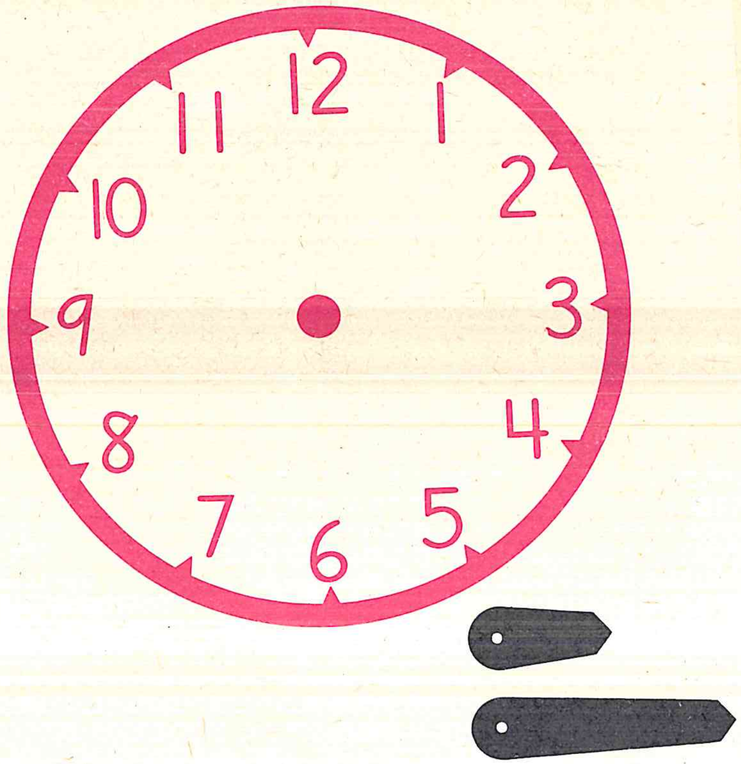
Now let us look at the clocks. Which clock says "Cuckoo"? Put an X on it. Which is the clock radio? Put a ring around it. Which clock rings an alarm in the morning?

Extended Activity

Post 2 large sheets of paper. Give the children old magazines and catalogues from jewelry stores. Ask them to cut out pictures of watches and clocks. Paste the watches on one piece of paper and the clocks on the other.



6 Reading the Clock on the Hour



6

Purpose

To develop readiness for clock reading, to teach the children to tell time on the hour.

Vocabulary

Clock, o'clock, late, fast, slow, morning, noon, afternoon, daytime, nighttime.

Materials

Discarded clock, toy clock with movable hands, paper plate or tagboard square, two tagboard hands—one 1½″ and the other 2¾″ long, small brads or paper fasteners.

Developmental Activity

How do we know what time it is? Encourage responses. **If you didn't have a clock, how could you tell?** [sun, TV, radio, noon siren, school bell, factory whistle, church bell]

Let us keep a record of things we do each hour in our classroom. It will look something like our story charts. Have the class develop the chart with help and direction of the teacher. It may look like this:

9:00	We start school.
10:00	We go out on the playground.
11:00	We read.
12:00	We eat lunch.
1:00	We sing.
2:00	We do arithmetic.
3:00	We hear stories.

As I mention some things we do, we will show the time on our clock.

Who can move the clock hands to show when we start school? Continue this with other activities on the chart.

Procedure

Now let us open our books to page 6.

Let us cut out our clocks. I will give you something to paste your clock on. Have the children paste tagboard or construction paper on back of the clock hands. Then have them cut out the hands. Give each child a paper fastener for attaching the hands.

Demonstrate how the hands of the clock look at each given hour. Now ask the children to locate a given hour in relation to some activity that is important to the group.

Extended Activity

Keep the clocks which the children make. They will be used in lesson 112.

7

Purpose

To give practice with arithmetic vocabulary terms.

Vocabulary

As big as, big, bigger, biggest, tall, taller, tallest, around, over, small, as small as, all, before, after, above, how many, front, large, soon, left, right, other, close together, far apart, high, last, middle.

Developmental Activity

Early in the year the teacher should make arrangements for a boy on the safety patrol to visit the classroom. Learn his name. Ask him to show the children his badge and belt. Have him talk to the children about what the signals mean and his service in protecting the children's welfare. The teacher should then discuss with the children their responsibility to the patrol boys.

Next take the children to a crossing. Give them some real experiences with the traffic and the service of a patrol boy. This firsthand experience gives the lesson significance and meaning.

Procedure

Open you books to page 7.

What is happening in this picture? How many children do you see? [4] **Are they all the same size? Put an X on the child at the front of the line. Put a ring around the last boy in line. Draw a line under the boy in the middle of the line.**

Is it morning or afternoon?

What is above the door? [clock] **Draw a ring around the clock.**

Point to the tallest boy in the picture. Put an X on his patrol belt. Who is taller than the boy?

Show me your right hand. It is the one most of us write with. Now tell me what is growing on the right side of the door. How many bushes do you see? [3] **Put an X on each of them. Put your hands around the bushes. What shape are the bushes?**

How many groups of flowers do you see on the left side of the door? [2] **The left hand is the one most of us do not write with. Put a ring around each group of flowers.**

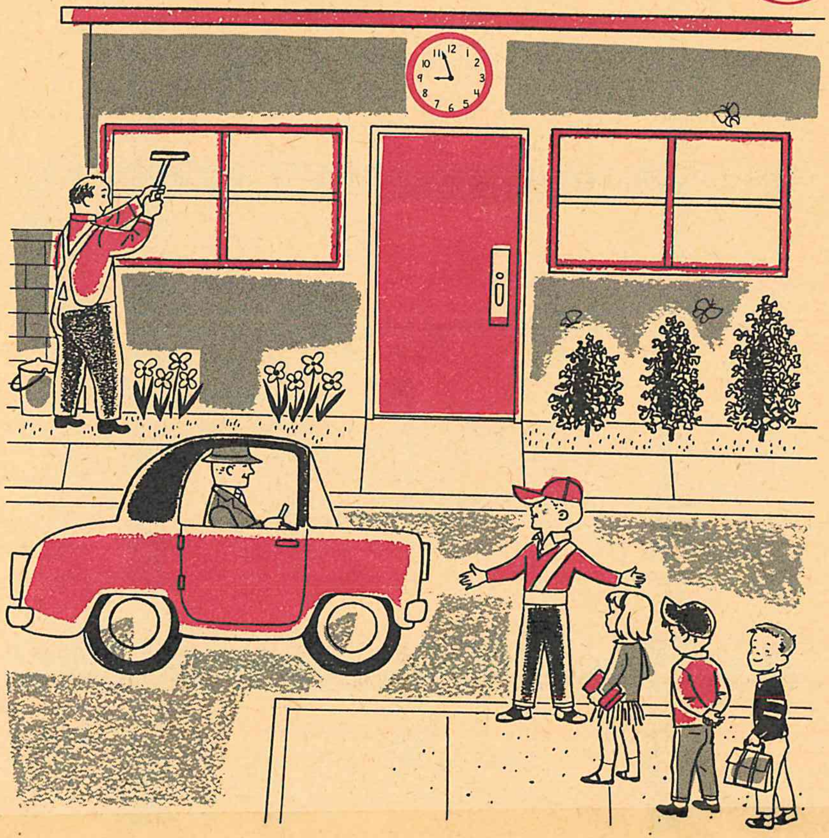
What shape is the door? [rectangle] **Who can find a block which is the same shape here in our room? Now if you turn the block in another direction, what would it remind you of?**

Discuss until all possibilities of suggested arithmetic vocabulary are exhausted. Listen to children's conversations to find out other uses of arithmetic language.

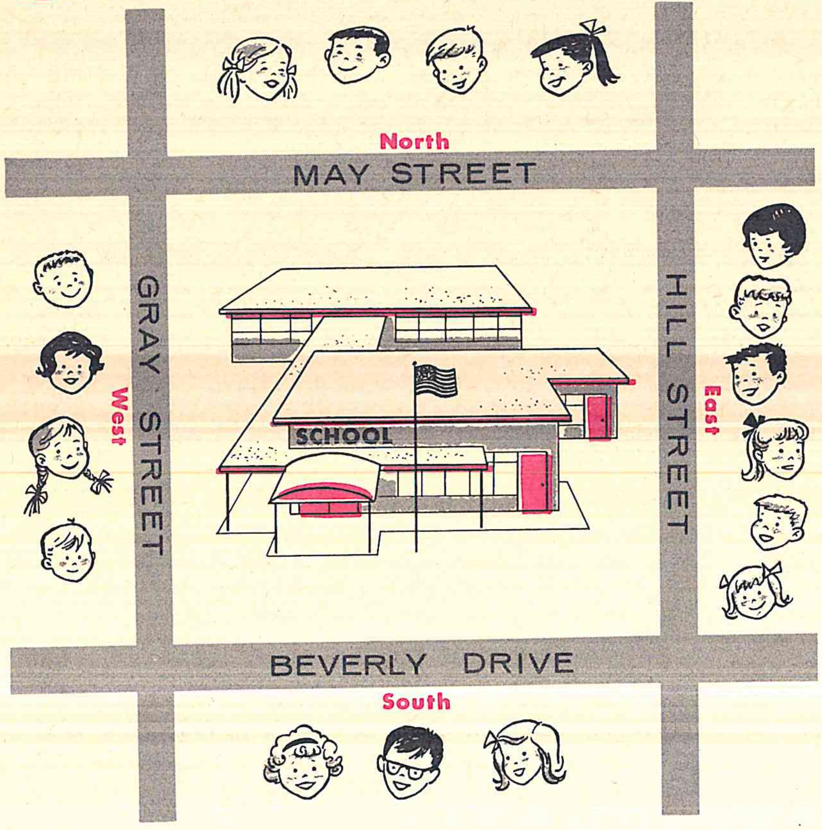
Extended Activity

A quick review of the terms developed in this lesson could be given by asking the children to find the tallest object in this picture, the tallest boy, the right window, the left window, etc.

Morning Patrol



8 Where Do You Live?



8

Purpose

To help the children get some beginning concepts of map-making, and to develop an awareness of the directions—north, south, east, and west.

Vocabulary

Left, right, north, south, east, west, to the side of, in front of, behind, fewest, more, less, most, all together.

Materials

A large sheet of paper, at least 5 feet long and 4 feet wide. (You will construct a map on this.) A piece of manila drawing paper 4″ x 4″ for each child to draw a self-portrait.

Developmental Activity

Take the children to the playground. Review the meaning of *right* and *left*. **There are four directions—north, south, east, and west.** Stand the children so that they are facing north. **We are now facing the direction north. South is behind you. Raise your right hand.** Be sure all children raise their right hand. **Your right hand is toward the east. This is the easiest direction to find because the sun always comes up in the east. Can anyone remember what the other direction is?** [west] **Hold up your left hand. This is toward the west. Put your hand down now.**

Who walks home from school in this direction? Point north. List the children's names on a pad. Repeat for each direction.

Go for a short walk near the school. Point out that streets have names. Read the names on the street signs to the children.

When you return to the classroom, place the 4′ x 5′ paper on the floor. Group the children around the paper. Then have them all face north. Write "North" on the proper position on the paper. Repeat this with all directions.

Write "North," "South," "East," "West" on the chalkboard. Under each heading list the names of children living in that direction from the school. If a child is not certain in which direction he lives, check the school records for his address.

Place a picture of the school building in the center of your map. It may be a child's drawing or the teacher's sketching. A photograph might also be used. Then draw in the streets closest to the school. Label them.

Give all children a piece of manila drawing paper and ask them to draw pictures of themselves. Have the children cut out the pictures and color them. When the drawings are finished, have all the children whose names are listed under "North" fasten their pictures on the north side of the map. Do the same with each of the other directions.

An appropriate label completes the map. Get suggestions from the children.

Procedure

The map on page 8 is like ours in many ways. Who can tell one? another?

How many children live east of the school? west? north? south?

Put a ring around the group of children who live to the right of the school. Put a ring around the group who live to the left of the school. Which group has the most children in it? [group to right or east] **Which group has the fewest children in it?** [south]

Count the boys. [8] **Count the girls.** [9] **Does anyone know whether there are more boys or girls?** [1 more girl] **Does anyone know how many children there are all together?** [17]

Extended Activity

Keep your developmental map in the room for several days. Refer to it frequently. Give the children an opportunity to practice their new learnings in a variety of ways. Add the picture of any new child who comes into the class.

Purpose

To ascertain that children have an understanding of "one-ness."

Vocabulary

Tall, taller, tallest, round, small, rectangle, straight, by the side of, near.

Materials

Cardboard material for cutouts of objects in the story or flannel cutouts. Flannel board.

Developmental Activity

Read the story, "Mark Washes Mike," on page i to the children. Use the cardboard or flannel cutouts at appropriate intervals in telling the story.

You have heard the story, "Mark Washes Mike." What part of the story did you like best? What happens when you wash your dog? Encourage children to tell of their experiences.

Procedure

Let us open our books to page 9.

We are going to play a seek-and-find game. Find the tallest object or thing in the picture. [tree] **Put an X on the trunk of the tree.**

Put an X on Mother.

How many tubs do you see? [1] **What shape is the tub?** [round] **Put an X on it.**

Is Mike in or out of the water? [out] **How can you tell he has been in the water? Draw a ring around Mike.**

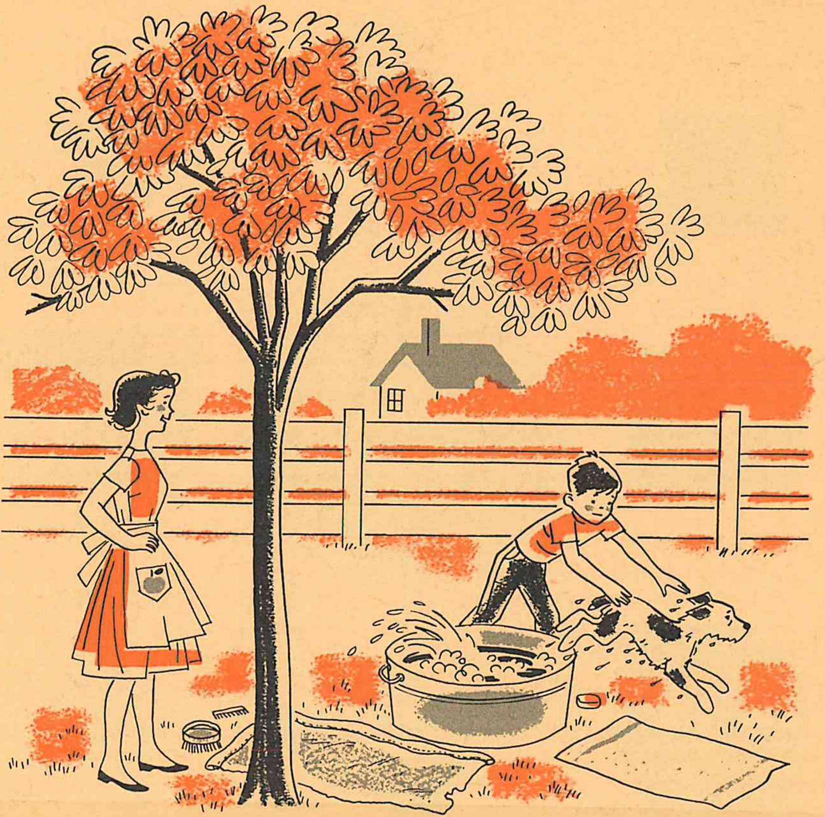
How many towels are in the picture? [1] **What is the shape of the towel?** [rectangle]

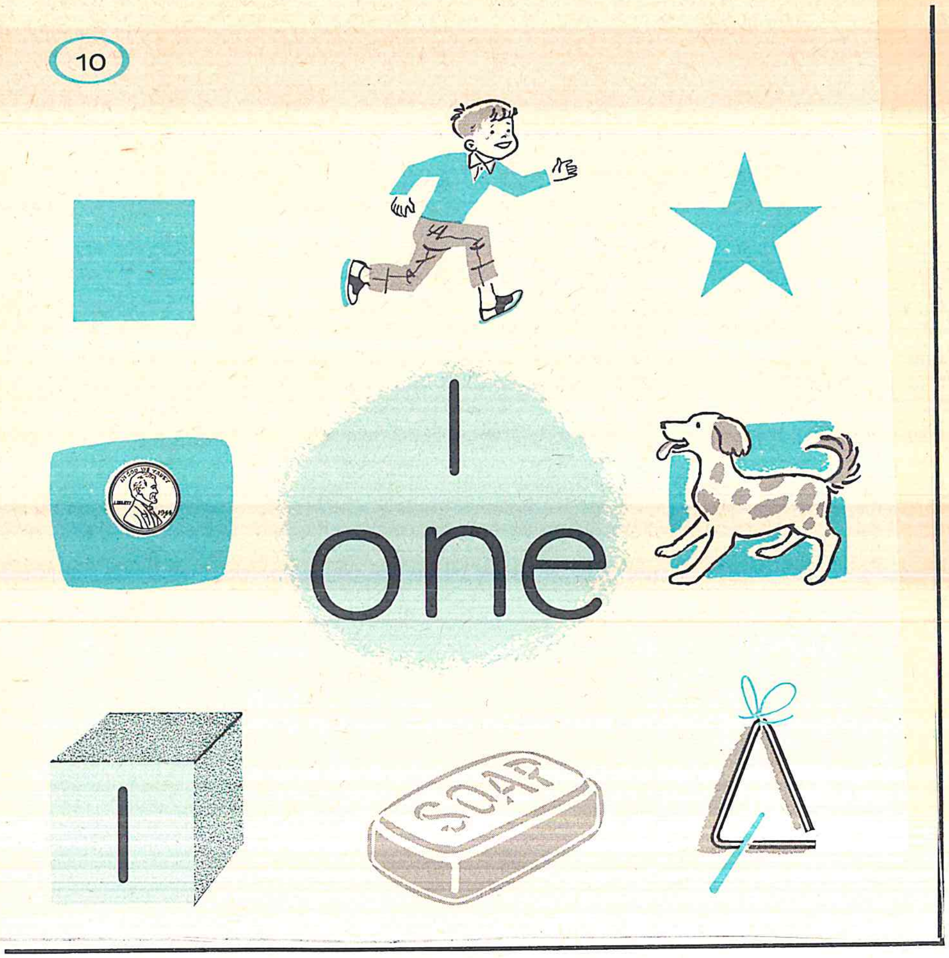
How many cakes of soap are there? [1] **Is the cake of soap large or small?** [small] **Put an X on the soap.**

Reread the story. Give the flannel cutouts to several children. Let them place the cutouts on the flannel board at the appropriate time.

Extended Activity

Give the children paper 12″ x 18″. Have an assorted collection of pictures from magazines. Each child may paste 1 picture on his paper to illustrate one-ness. This might be the first in a series of pages for individual booklets called *My Arithmetic Book—From 1 to 10.*





Purpose

To develop the concept of one-ness. To identify one as a group in many situations.

The lesson should move rapidly. Nearly all children know the numeral 1 and can count and point to one of something.

Vocabulary

Square, triangle, star, numeral, one.

Developmental Activity

Have the group find objects in the room that occur as 1. You might ask such questions as:

How many teachers do we have?
How many pencil sharpeners, flags, etc. are in our room?
How many teacher's desks do we have in the room? How many teacher's chairs?

Procedure

Open your books to page 10.

Look at the numeral in the middle of the page. It is the numeral ______. Let children answer.

Then ask the children to identify the things on the page. The page shows:

1 square
1 boy
1 star
1 dog
1 penny (cent)
1 triangle
1 bar or cake of soap
1 block

Then point to the word *one* in the middle of the page. **Who knows this word?** Let children answer. **Yes, the number word one looks like this.** Have each member of the group frame the word *one* with his hands and softly say it.

Purpose

To introduce the concept of "two-ness"; to be alert to the concept of pair.

Vocabulary

Two, two-ness, twins, pair.

Materials

2 small baby dolls, 2 sleepers, 2 dresses, 2 caps, 2 pairs of socks, 2 pairs of shoes, 2 rectangular boxes, several sheets of paper 24″ x 36″, paper for booklets 12″ x 18″.

Developmental Activity

Secure 2 small dolls, 2 bottles, and a minimum wardrobe. Use the actual objects for discussion purposes. Put them in the home-unit corner and observe the children at their play.

Read the story, "Twin Brothers for Mary Ann," on page ii to the children. Discuss twins in terms of two-ness.

If materials cited above are available, discuss how they are used. Call attention to the fact that a pair of socks or shoes for the dollies means 2 socks or 2 shoes. Have the children tell other things that come in pairs, such as gloves and mittens.

Procedure

Let us open our books to page 11.

Look at the page. I see 2 of many things. How many dolls? [2] **Mark each with an X.**

I see how many boxes? [2] **What shape are they?** [rectangles] **What could they be used for? Put a ring around them.**

How many sleepers do you see? Mark each with an X.

How many baby bottles do you see? Mark each with an X.

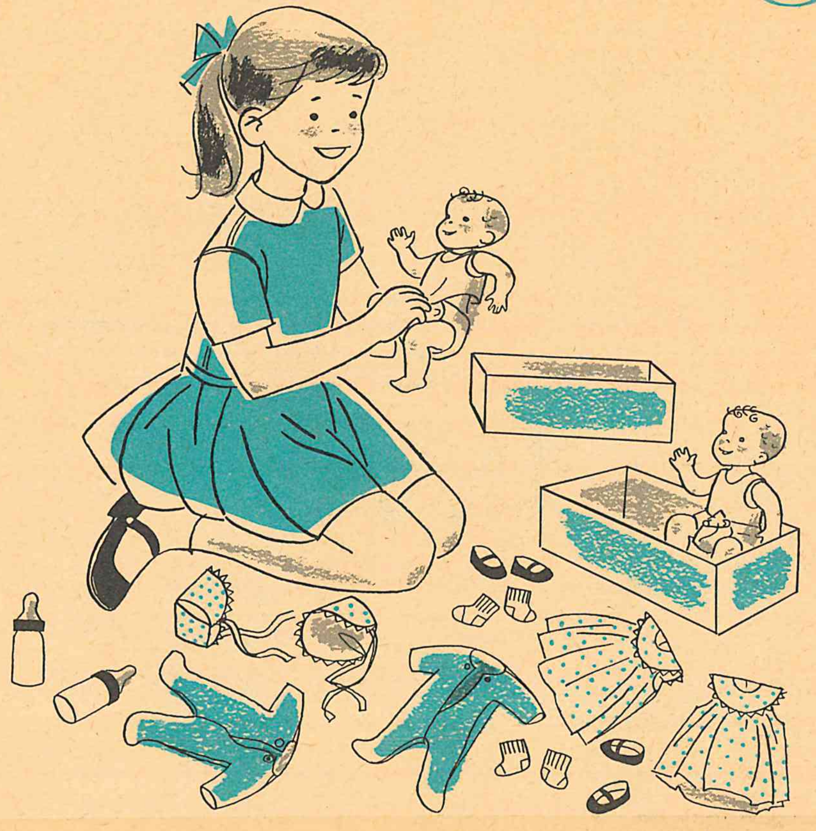
When Mary Ann dresses her dolls, find something she puts on them. When she puts on their shoes and stockings, how many ***pairs*** **does she need for** ***each*** **doll? Find them. Put a circle around each pair of stockings. Put a circle around each pair of shoes.**

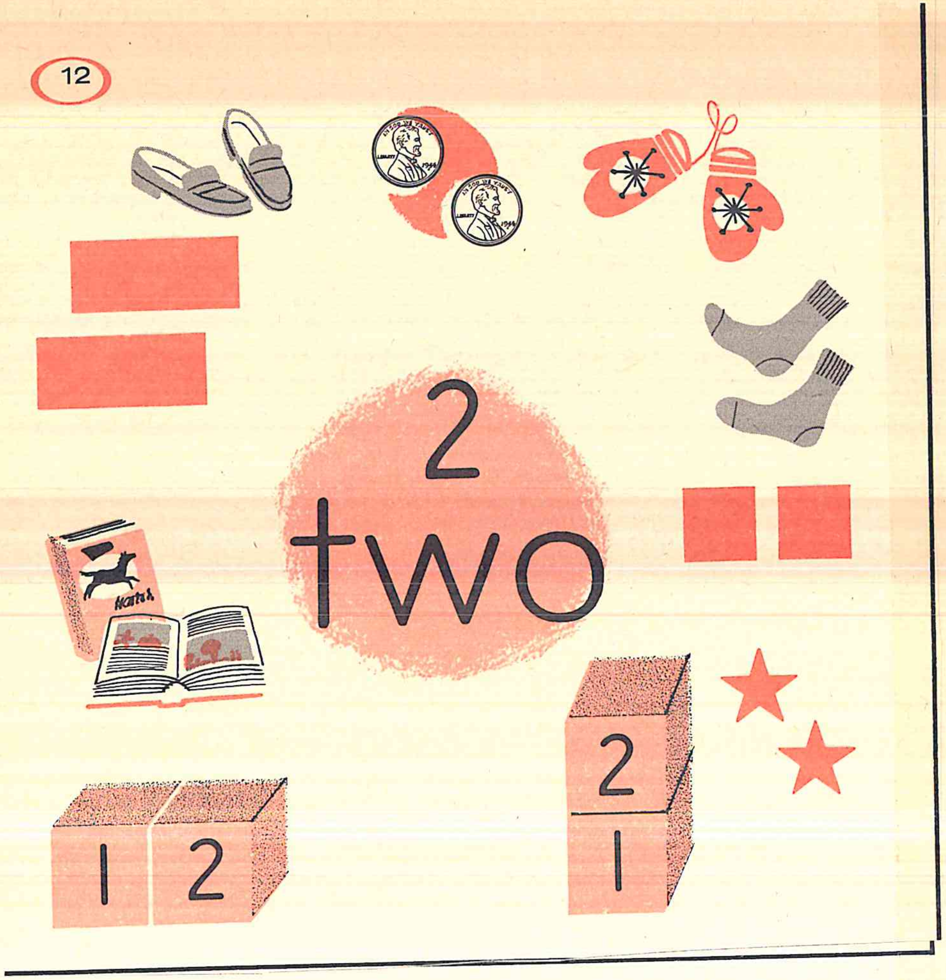
Discuss the fact that you often have 2 objects which are not a pair. List some objects that occur as 2, but are not a pair.

Extended Activity

Make the second page for the individual booklet, *My Arithmetic Book*. Have the children draw or cut out 2 objects for this page. Add this page to the booklet.

Give groups of children large sheets of paper 36″ x 24″. Fold the paper into six 12″ squares. Have a wide variety of magazine pictures available. Encourage the children to put pictures of 2 things in each square. If children put like objects in a square, discuss the difference between two-ness and pairs.





12

Purpose

To develop the concept of two-ness (two as a group). To identify two-ness in many situations.

This lesson should move rapidly.

Vocabulary

Square, star, block, pair, two.

Developmental Activity

Have the children find many groups of 2 things in the room. Discussion might start with questions, such as:

How many eyes do you have?

How many flowers are in the picture on the front wall?

Use questions to lead the children into a discussion of two. Several clarifications about groups and two-ness may emerge from the discussion.

Do the parts of a 2-group need to be the same? [no]

What is a pair?

Procedure

Open your books to page 12.

Look at the numeral in the middle of the page. It is the numeral ______. [2] Let the children answer.

Then ask the children to identify and discuss the things on the page.

2 pennies or cents
2 shoes (pair)
2 mittens (pair)
2 socks (pair)
2 squares
2 books
2 sets of blocks
2 stars
2 rectangles

How is a pair a special kind of 2-group?

How are a block and a square different?

Point to the word *two* in the middle of the page. **Who knows this word?** Let the children answer. **When we write the number word *two*, it looks like this.** Have each member of the group frame the word *two* with his hands and softly say it.

Extended Activity

For independent seatwork, have groups of three or four children illustrate the two idea on a large page of newsprint (24″ x 36″). Write a large numeral 2 in the center of the paper. Have the children cut out pictures to illustrate.

Materials needed: old magazines, scissors, paste.

Evaluation of this work may lead individual pupils to further understandings about groups.

Are all of the examples good ones? Why?

Purpose

To develop an awareness of "three-ness" and to sensitize children to ways of seeing 3.

Vocabulary

Round, circle, square, rectangle, closest to, farthest, empty, full, smallest, largest.

Developmental Activity

Read the story, "Packages for Others," on page ii. Encourage the children to share any related experiences they may have had.

Packing some boxes for others might be an outgrowth of this experience.

Procedure

Let us open our books to page 13.

How can you tell whether the children are at school or in a store? [cash register, counter] **Point to the counter. What shape is it?**

How many combs do you see? [3] Ask the children to describe the groupings of the objects to you; say, **How do you see the combs?** [3 in a row] **Draw a ring around the combs.**

Find the toothbrushes. How do you see them? [1 in the girl's hand, 2 on the counter] **Put an X on the toothbrush in the girl's hand.**

How do you see the cakes of soap? [2 cakes together and 1 by itself] **Draw a ring around all 3 cakes of soap.**

Can you find something else arranged in the same way? [boats] **What shape are the sails? Draw a ring around the boats.**

Find other things lined up in a row. [airplanes, toothpaste] **Draw a ring around each of these groups.**

Point to the boxes of crayons. How do you see them? [1 in one hand, 2 in the other]

What shape are the designs on the wall? [square]

What is the smallest object the children bought? What is the largest?

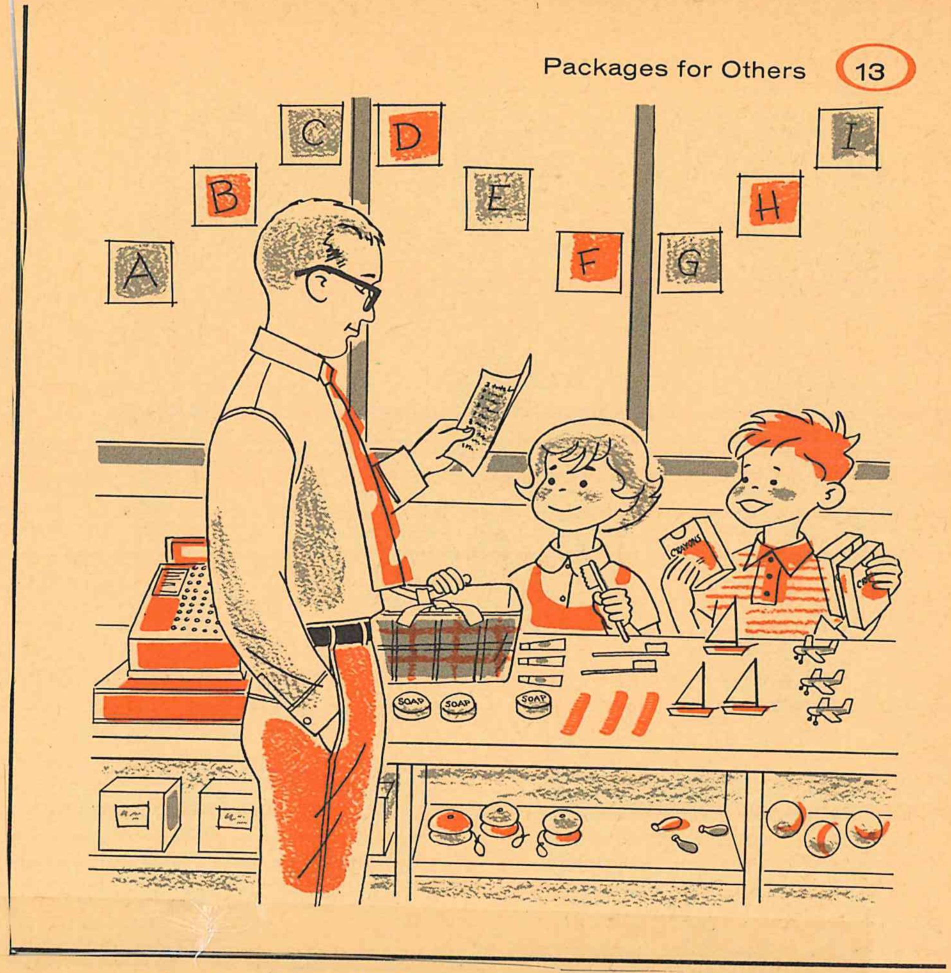
After the things the children bought were in the shopping basket, was the basket empty or full?

Continue discussing the objects and their arrangement as long as interest is maintained.

Extended Activity

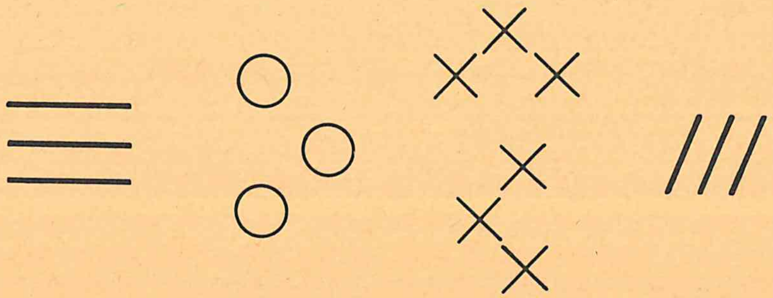
Provide time for the children to tell the story, "Packages for Others," at school for the kindergarten class. Or encourage them to tell it at home.

Fold several pieces of 24″ x 36″ paper to make 6 squares on each sheet. Place them in work areas around the room. As a

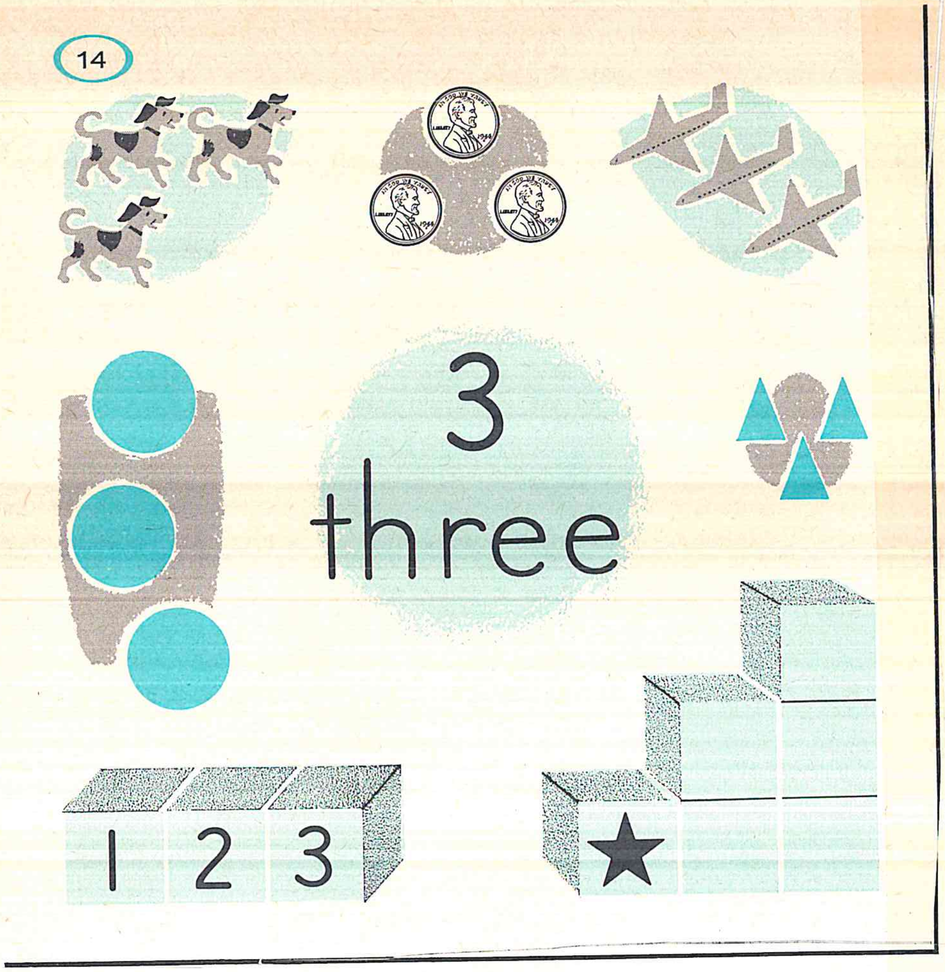


group activity, have the children fill each square with things (their own drawings or pictures from magazines) to illustrate the concept of three-ness.

Encourage the children to arrange the objects in a variety of ways. Demonstrate this on the chalkboard:



When the basic idea of various arrangements of 3 is demonstrated, use many different materials.



14

Purpose

To develop the concept of "three-ness" and to identify three as a group in many situations. To develop the structure of counting numbers by seeing that 2 is 1 more than 1, 3 is 1 more than 2, and that 2 is 1 less than 3, 1 is 1 less than 2.

> Each child should be supplied with a small box containing a set of at least 10 counters.

Vocabulary

Block, square, triangle, more than, less than, three.

Developmental Activity

Have the class find many groups of 3 things in the room. Discussion might include such questions as, **How many books are on the library table?** [3]

As the group identifies many 3-groups in the room, ask if they can find a 2 in each of the 3-groups. **How do you see the 2 in this group? How many more than 2 is 3? Show us.**

Procedure

What is the numeral in the middle of the page?

Have the children identify and *discuss* the things on the page.

3 dogs	**What kind of 3-pattern do the dogs make?** (All children will not see these patterns the same way. There is no *one* correct answer.)
3 pennies	**What kind of 3-pattern do the pennies make?**
3 airplanes	**What kind of 3-pattern do the airplanes make?**
3 triangles	**What kind of 3-pattern do the triangles make?**
3 circles	**What kind of 3-pattern do the circles make?**
3 blocks	**What kind of 3-pattern do the blocks make?**

Point to the word *three* in the middle of the page. **Who knows this word?** Have the children answer. **Yes, the number word three looks like this.** Have each member of the group frame the word three with his hands and softly say it.

Now look at the blocks in the lower left-hand corner. Put your finger on block number 1. Put your finger on block number 2. Put your finger on block number 3.

Now look at the blocks in the lower right-hand corner. Frame them with your hands. They make a kind of stairs, don't they? Look at the block with the star on it. Put your finger on it. How many blocks are you pointing at? [1] **How many blocks in the next pile or stack?** [2] **How many blocks in the next stack?** [3]

With your counters make a stair step like the one in the book.

Lead the children to discover that 2 is 1 more than 1, 3 is 1 more than 2.

Direct the children to point to the first counter on the left. **How many counters are you pointing at?** [1] **Now point to the next pile of counters. How many counters are there in this pile?** [2] **Is 2 more than 1?** [yes] **Two is how many more than 1?** [1] **Point to the next stack of counters. How many counters are here?** [3] **Is 3 more than 2?** [yes] **Three is how many more than 2?** [1]

Now let us go down the stairs we made with our counters. Point to the pile of 2 counters. Be sure the children are pointing to the correct pile. **How many counters are there in this stack?** [2] **Is 2 less than 3?** [yes] **How many less than 3 is 2?** [2 is 1 less than 3.] **Go down another step. How many counters are in this pile?** [1] **Is 1 less than 2?** [yes] **How many less than 2 is 1?** [1 is 1 less than 2.]

Extended Activity

Continue work on *My Arithmetic Book—From 1-10.* Have children draw or cut out pictures of 3 things to be pasted on the 12″ x 18″ page. Or have them draw pictures for this page.

Read from well-illustrated books *The Three Little Pigs, The Three Bears,* and *The Three Billy Goats Gruff.*

Purpose

To develop the idea of "four-ness."

Vocabulary

Twins, biggest, round, square, large, small, deep, four.

Materials

Objects arranged around the room to suggest four-ness. Several pieces of paper 24″ x 36″. Also, 12″ x 18″ sheets for individual books; pictures from magazines; cardboard or flannel cutouts for the flannel board.

Developmental Activity

Read the story, "Tabby," to the children. This is on page iii. If flannel board materials are accessible, they may be used as the story unfolds. If these materials are not available, use the picture in the book for discussion purposes. Ask the children about their pets. Ask if any of them has ever had baby kittens in his home. Give the children an opportunity to talk.

Procedure

Let us open our books to page 15.

Look at the picture.

Find the biggest cat. Put an X on it.

Now put an X on each of the kittens that look alike. Which kitten is closest to its mother? Draw a ring around it. Put an X on the other kitten.

Two kittens and 2 more kittens make how many all together? [4]

Draw a ring around the top of the basket. Show me with your hands how deep you think the basket might be. This is estimation.

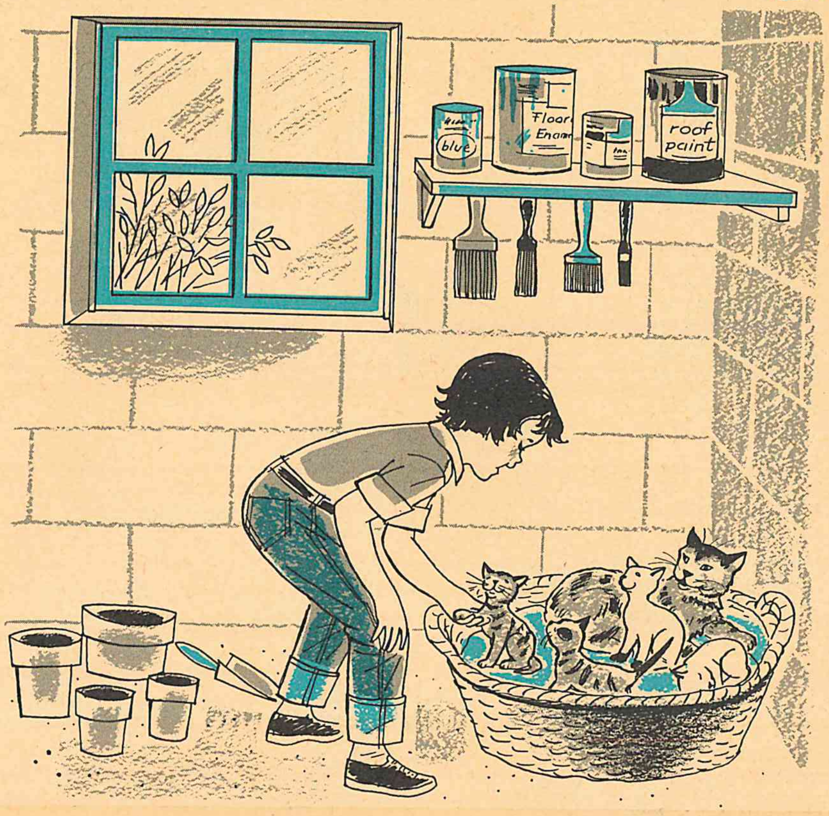
Let us look at some other things in the garage. How many large cans of paint do you see? [2] **How many small cans are there?** [2] **Is there a paint brush for each can of paint?** [yes] **Draw a line from each paint brush to a can of paint. Put an X on each of the paint brushes.**

What shape is the window? [square] **How many panes of glass are in the window?** [4] **We call each part one-fourth.** Demonstrate this with a piece of paper.

How many flower pots do you see? [4] **Draw a ring around all 4 of them.**

A further understanding of four-ness might be developed from situations similar to the following: **I see 4 musical instruments. Who can put them on the table?**

Who sees a pair of something? Who sees another pair? Now how many pairs do we have? [2] **How many objects?** [4]



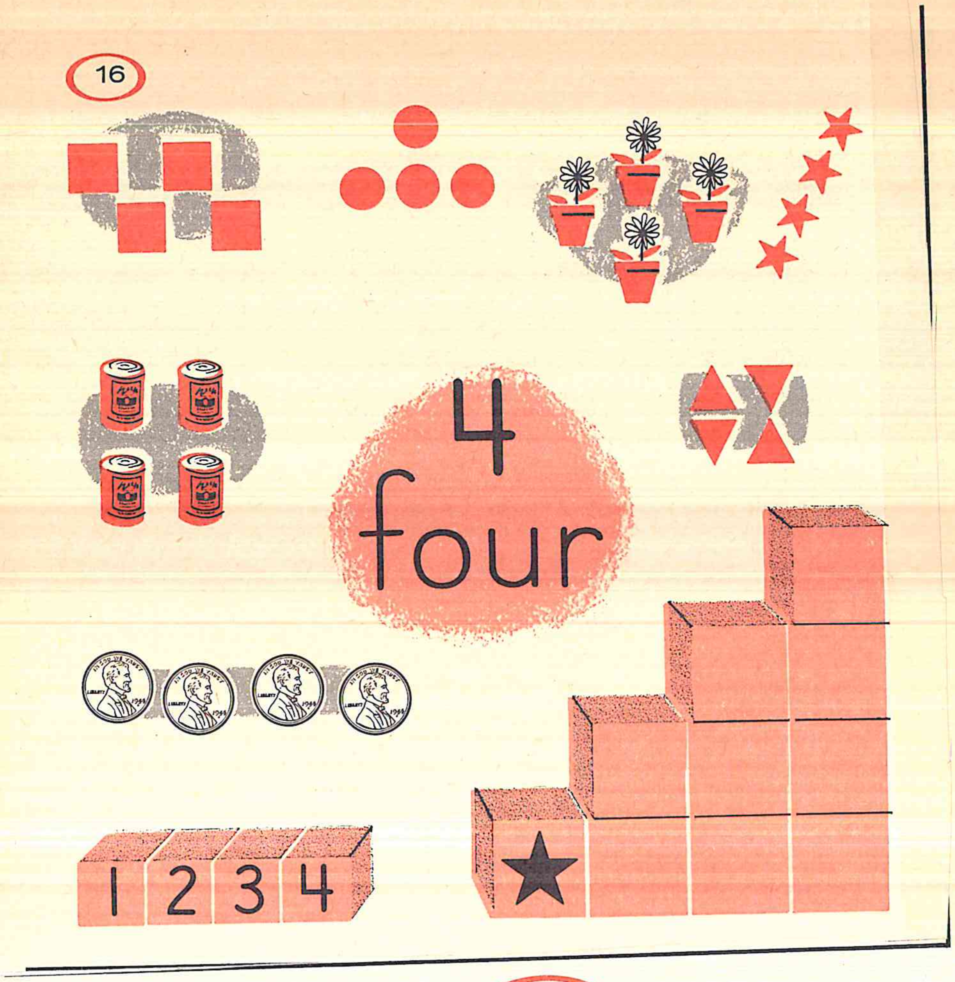
How many plants are on the window sills?

When (child's name) family gets a new baby, how many people will be in his family? Continue discussion using similar situations.

Extended Activity

Have each child paste or draw 4 objects on 12″ x 18″ paper. Add this page showing four-ness to *My Arithmetic Book.* (See page 9.)

Encourage children to bring additional pictures from home. Fold pieces of 24″ x 36″ paper into 6 squares 12″ x 12″. Have the children cut out and paste 4 pictures in each square.



Purpose

To develop the concept of four-ness, to identify four as a group in many patterns. To develop the *structure* of counting numbers by seeing that 4 is 1 more than 3, 3 is 1 more than 2, 2 is 1 more than 1, and that 3 is 1 less than 4, 2 is 1 less than 3, 1 is 1 less than 2.

Vocabulary

Block, circle, cent, triangle, star, more than, less than, four.

Developmental Activity

Have the pupils find many groups of 4 things in the room. **How do you see the 4?** Ask this for each group the children find. Discuss. The structure indicated above should emerge following the same pattern as on page 14, Developmental Activity.

Have pupils show how they see the various 4-groups. Discuss the various groupings.

Procedure

Look at the numeral in the middle of page 16. It is the numeral ______. Let the children answer.

Have the children identify and discuss the things on the page.

4 squares	**What kind of 4-pattern do the squares make?** (All children will not see these patterns the same way. Be sure to emphasize that there is no *one* correct answer.)
4 blocks	**What kind of 4-pattern do the blocks make?**
4 circles	**What kind of 4-pattern do the circles make?**
4 triangles	**What kind of 4-pattern do the triangles make?**
4 stars	**What kind of 4-pattern do the stars make?**
4 cents	**What kind of 4-pattern do the cents make?**
4 flower pots	**What kind of 4-pattern do the flower pots make?**
4 cans	**What kind of 4-pattern do the cans make?**

Point to the word *four* in the middle of the page. **Who knows this word?** Have the children answer. **Yes, the number word four looks like this.** Have each member of the group frame the word *four* with his hands and softly say it.

Now look at the blocks in the lower left-hand corner. Point to them. Put your finger on block number 1. Now put your finger on block number 2. Now put your finger on block number 3. Put your finger on block number 4.

Now look at the blocks in the lower right-hand corner. Frame them with your hands. How many blocks high is the last stack? [4] **Look at the block with the star on it. Put your finger on it. How many blocks are in the next stack?** [2]

With your counters make stair steps like those in the book.

Direct the children to point to the first counter on the left. **How many counters are you pointing at?** [1] **Now point to the next stack or pile of counters. How many counters are there in this pile?** [2] **Is 2 more than 1?** [yes] **Two is how many more than 1?** [1] **Point to the next pile of counters. How many counters are there in this pile?** [3] **Is 3 more than 2?** [yes] **Three is how many more than 2?** [1] **How many counters are there in the next pile or stack?** [4] **Is 4 more than 3?** [yes] **Four is how many more than 3?** [1]

Now let us go down the stairs. Point to the pile of 3 counters. How many counters are in this pile? [3] **Is 3 less than 4?** [yes] **Three is how many less than 4?** [1] **Point to the pile of 2 counters. How many counters are there in this pile?** [2] **Is 2 less than 3?** [yes] **How many less than 3 is 2?** [2 is 1 less than 3.] **Go down another step. How many counters are in this pile?** [1] **Is 1 less than 2?** [yes] **How many less than 2 is 1?** [1 is 1 less than 2.]

(*Continued on next page.*)

(*Continued from page 16.*)

Extended Activity

Play an I Spy game all day. Pupils are to keep looking for examples of 4-groups in their work, the room, the playground. The purpose of the game is to have them become very much aware of groups of 4 things.

17

Purpose

To teach the children how to write the numerals (symbols) 1 and 2.

Vocabulary

Straight line, curve.

Developmental Activity

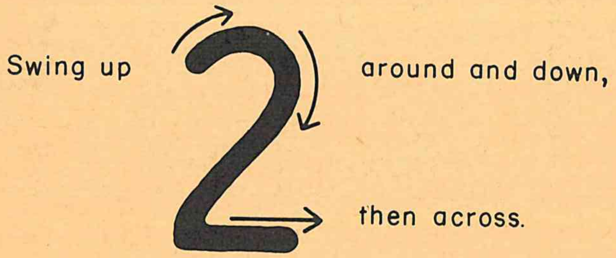
When the pupils are learning how to write numerals, it is important, from the very beginning, that they realize they are writing *symbols* for the quantity idea. Because of this, it may be helpful to make statements like the following during the lesson: **This is the sign or numeral that stands for one; this is the sign or numeral that stands for two.**

Put a large numeral 1 on the chalkboard. **What does this numeral stand for?** Follow with a quick discussion.

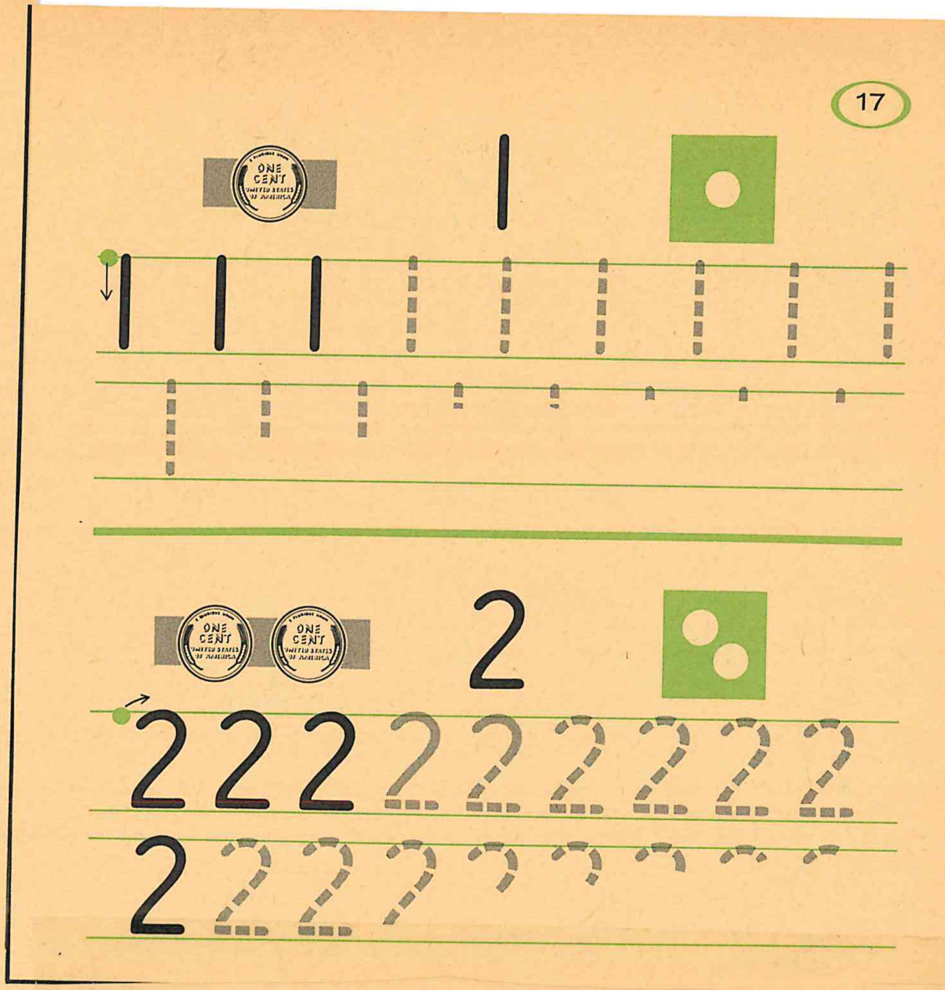
Repeat with the numeral 2.

Today we are going to learn how to write the numerals for one and two. It is very easy to write the numeral 1. One is a straight line, like this. Demonstrate this at the chalkboard. **Start at the top and come straight down in one line.** Have the class make 1's on their desk or table top with their fingers. Have as many children as space permits write 1's on the chalkboard.

Two is made of curved lines, like this. Demonstrate on the chalkboard. **We start here and swing up, around and down, then across.**



Demonstrate several times. Have the class make 2's on their desks with their fingers. Repeat at the chalkboard.



Procedure

Open your books to page 17.

Point to the big numeral 1 in the top picture. Next to it are pictures of a cent (penny) and a dot pattern.

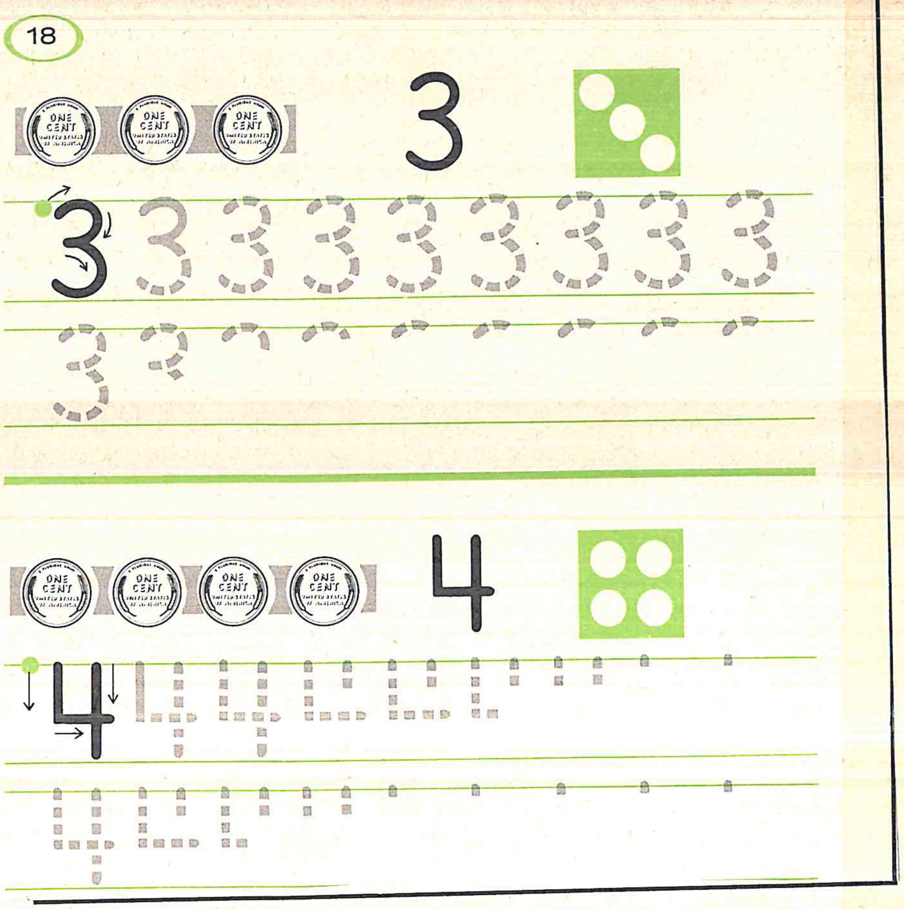
Have the children start beside the colored dot on the first row of 1's and trace each 1 with their fingers. Then trace over each of the dotted 1's with a crayon or large pencil. During this practice, have the children say "Stroke" as each 1 is written.

Repeat for the numeral 2. Emphasize the "Swing up, around and down, then across."

It is a good idea for the teacher to circulate and help individuals hold their crayon or pencil correctly. She should also make sure the children are sitting properly.

Extended Activity

Have children with poor motor coordination practice writing the numerals with chalk at the board. The writing should be *large*. Make guide lines 4″ apart.



18

Purpose

To teach how to write the numerals 3 and 4.

Vocabulary

Straight line, curve.

Developmental Activity

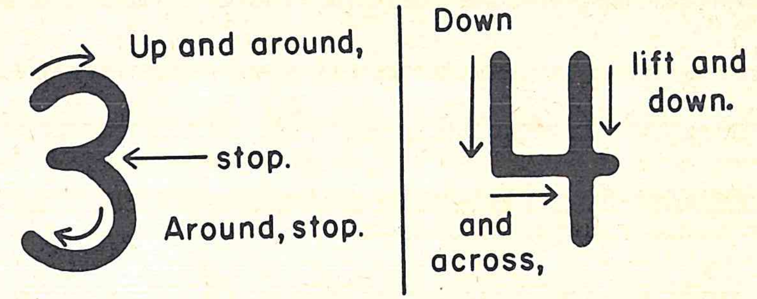
It is helpful to many children to learn a pattern of straight lines and curves when they are taught the formation of numerals.

Put a large numeral 3 on the chalkboard. **Boys and girls, the numeral for three is made with curved lines, like this. Up and around, stop. Around, stop.**

Demonstrate this several times. Then have the children make 3's on the desk or table top with their fingers. Have as many as possible practice writing 3's at the chalkboard.

Repeat for the numeral 4 with emphasis on straight lines. **Boys and girls, the numeral for four is made with straight lines, like this. Down and across, lift and down.** Demonstrate several times.

Have the children make 4's on the desk or table top with their fingers. Have chalkboard practice.



Procedure

Open your books to page 18.

Point to the big numeral 3 in the top picture. **This is the numeral** ______ (pause). [3] **Next to it are how many pennies?** [3] **What dot pattern is on the other side of the 3?**

Have the group trace the pattern for the 3's with a colored crayon or large pencil. **The dot shows you where to begin, and the arrows show the way to go.** During this practice, have the children say, "Up and around, stop. Around, stop."

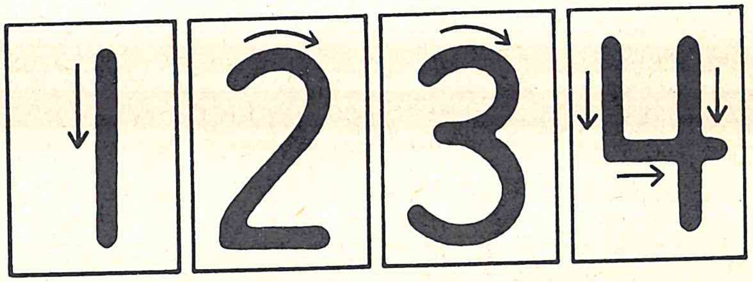
Repeat this procedure for the numeral 4 with emphasis on the straight lines. As they practice writing 4's, have the children say, "Down and across, lift and down."

Let's be sure we are sitting up straight and holding our pencils (crayons) correctly. Circulate to give help to individuals.

Extended Activity

Have pupils with poor motor coordination practice writing the numerals with chalk at the board. Use 4″ guide lines.

Make a set of 5″ x 8″ cards with the numerals 1, 2, 3, and 4 on them. Use colored dots and arrows to show directions for writing.



Purpose

To provide practice in writing numerals; creating patterns for 1, 2, 3, 4; "seeing" groups in many ways; and recognizing the numeral that represents each group.

Vocabulary

First, top, bottom, numeral.

Materials

4 counters for each pupil.

Developmental Activity

Have the pupils put a set of 4 counters on the table or desk. **In how many ways can we arrange our counters?** Variety is sought.

Repeat this procedure with a set of 3 counters.

Procedure

Open your books to page 19.

What is the numeral at the top of the page? [4] **Who can read the number word?**

Put your finger on the first box in the top row. How many dots are in the box? [4] **What numeral has been written under the box?** [4]

Look at the next box. What numeral should you write below it? [3]

In the first 2 rows on the line under each box you are to write the numeral that tells how many dots are in the box.

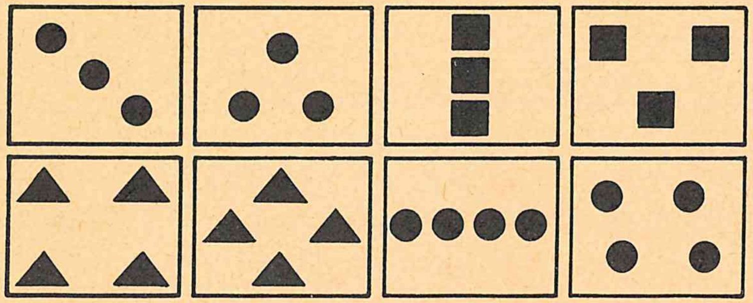
Before we write the numerals, let us look at the bottom row. What do we need to do here? [We need to put as many dots in the boxes as the numerals tell us.] **Go ahead and do the page.**

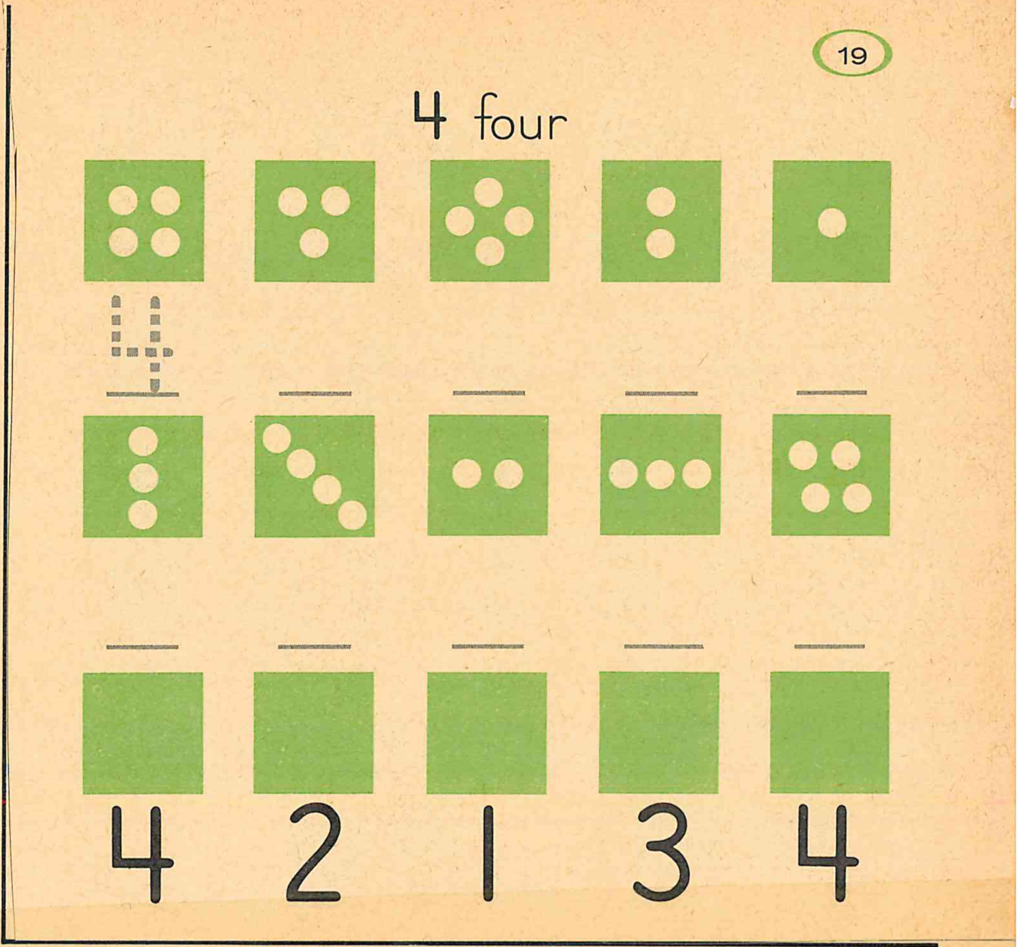
Circulate among the group and give help as needed.

Extended Activity

Make up sets of flash cards with dot patterns.

Have groups of children practice giving the correct number names for the patterns. Mix the order of the cards.

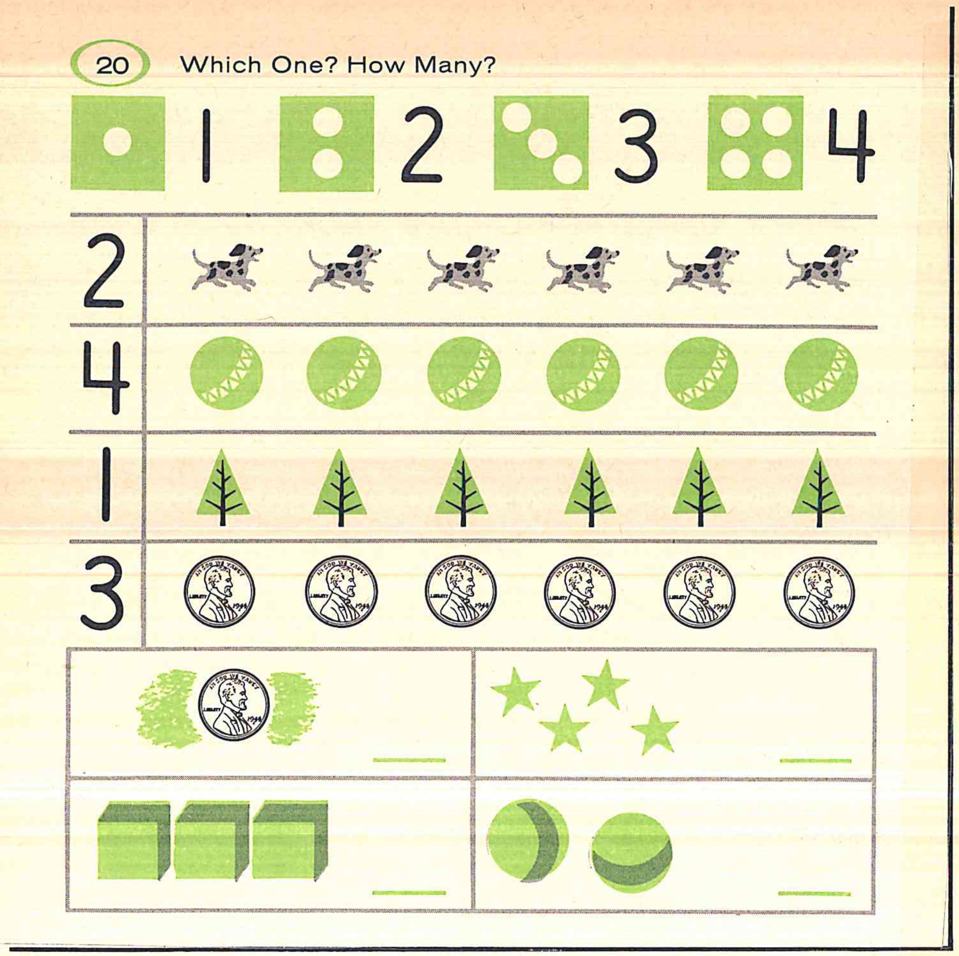




Make other cards with patterns formed by squares or triangles.

When a pupil cannot tell *how many* at a glance, have him practice making groupings of that particular number.

This activity is Dot Flash.



20

Purpose

To provide practice in counting and grouping with 1, 2, 3, and 4.

Vocabulary

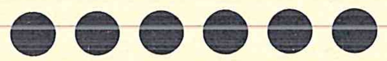
How many, circle, square, penny, cent.

Materials

A set of 12 counters for each pupil. A flannel board.

Developmental Activity

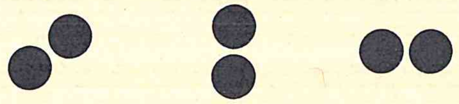
Have each child put a cluster of 6 counters on the desk in front of him. Put 6 objects on the flannel board or chalkboard:



I am going to say a number. When I do, show me *how many* **with your counters: 2** (pause); **1** (pause); **4** (pause); **3.** Be sure to observe the work of the children carefully.

Put the size group indicated on the flannel board. Several children may wish to show another pattern. Encourage variety, but keep the lesson moving.

Next have each child make three different patterns for 2, then for 3, and for 4. Have the children arrange a row of patterns for 2.



Have them make new groupings for 3, etc. As different patterns are suggested, put them on the chalkboard for reference. See how many different patterns the class can make.

Next have each child put 4 counters in a row. **Which one is first? Is it number 1? Which one is second? Is it number 2? Which one is third? Is it number 3? Which one is fourth? What number is it?**

Boys and girls, today we have discovered two meanings for each of the numerals, 1, 2, 3, and 4. Each numeral can mean *how many* **or** *which one.*

Procedure

Open your books to page 20.

Look at the top of the page. Each of the dot patterns has a numeral next to it. Let's read them softly as I point: 1—2—3—4.

Now look at the row with the 2 in front of it. Point to this. Put a ring around the number 2 dog or second dog.

Look at the row with the 4 in front of it. Point to this. Put a ring around the number 4 ball or fourth ball. Repeat for the numerals 1 and 3.

Now look at the bottom of the page. Do you think you can write the numeral that tells *how many* **things are in each box? What is in the first box?** [1 penny or cent] **Write the numeral 1 on the line.** Follow this procedure for each box.

Extended Activity

Have the children play *Dot Flash* in pairs. This is explained on page 19.

Purpose

To develop ordinal counting ability.

Oral language development precedes written language. This is an oral lesson, designed to insure that the pupils understand the ideas they are going to meet in symbol form.

Vocabulary

First, second, third, fourth, fifth, sixth, seventh, eighth, ninth, tenth.

Materials

10 counters for each child. Crayons.

Developmental Activity

Children learn best in functional situations. Because of this, many opportunities for counting in regular classroom situations should be used. Have children count to find how many are in reading groups, lines for play periods, etc.

To give practice with ordinals, a particular word may be "special" for a day. The specific idea is to tell *which one*. For example: **Who is fourth in line? What is the fourth day of the week?**

As specific preparation for this lesson, have each pupil take out a set of 10 counters. Have the counters lined up in a row:

0 0 0 0 0 0 0 0 0 0

Have various pupils take turns pointing to a counter and telling its number name. This can be done in 2 ways. A counter can be either *number 3* or *the third one*.

Have the group repeat the ordinals, first through tenth, several times. Then have the class repeat them backwards several times. Then take turns scrambling the order. **What comes before seventh, third, etc.? What comes after eighth, fifth, etc.?**

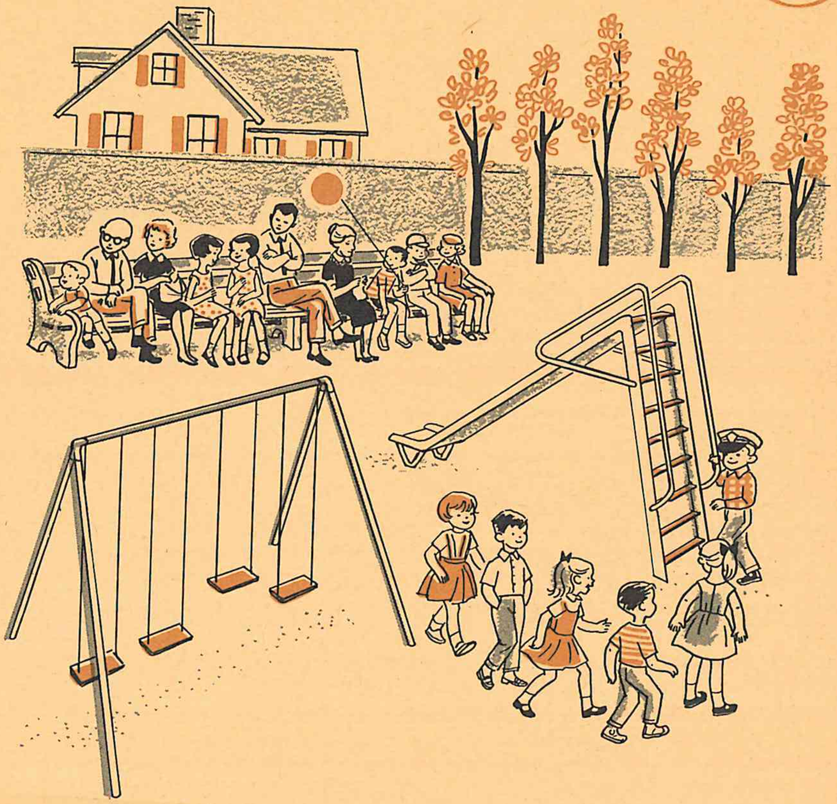
Procedure

Look at the picture of the park on page 21.

Give the children time for exploring the picture. Then systematically explore the picture with them.

How many trees are there in the upper right-hand corner? [6] **Point to them. Which is tallest?** [third or number 3 tree] **Which is shortest?** [fifth or number 5 tree]

How many people are sitting on the park bench? [10] **Tell me about the first person, the second person, etc.**



How many swings are there? [4] **Which one is highest?** [third or number 3]

How many children are lined up at the slide? [6] **Which ones are boys?** [first or number 1, third or number 3, fifth or number 5] **Which ones are girls?**

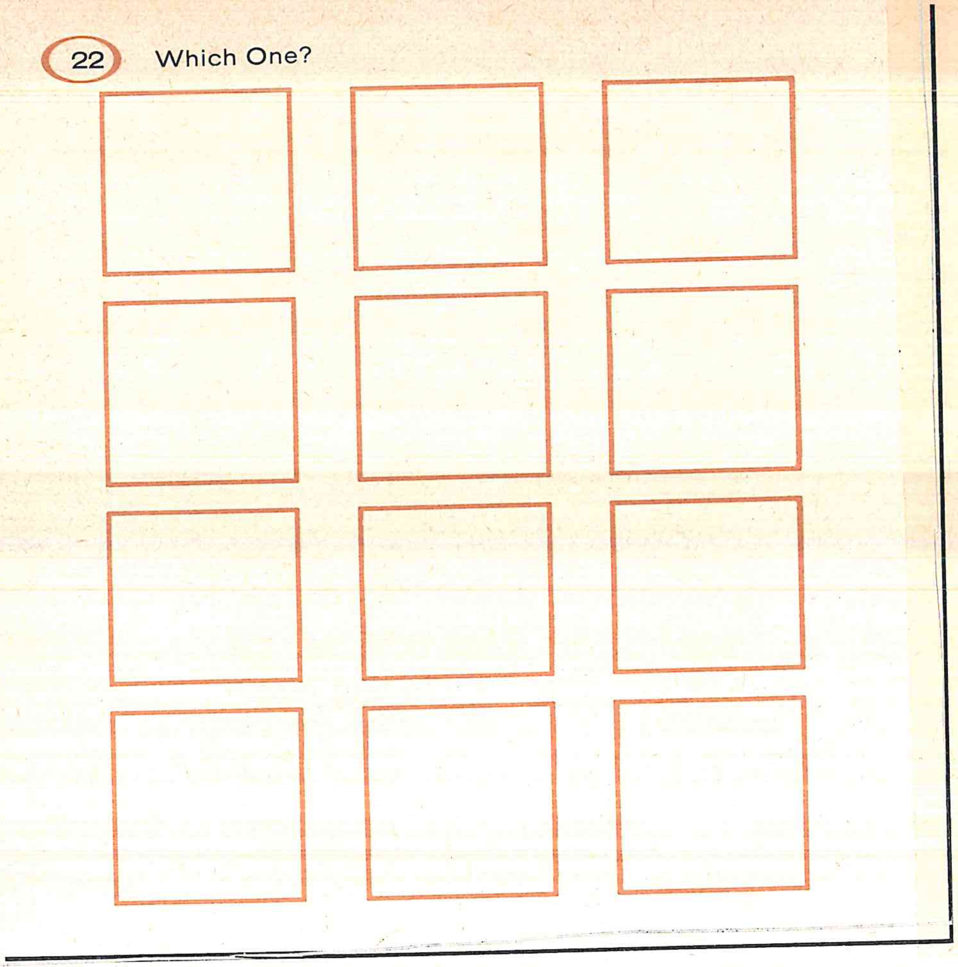
Play a game. **I am looking at the children lined up at the slide. One of them has** ______. Describe. Using ordinal numbers, the children try to be first to tell which one it is.

Now let's see how well we can follow number directions. Take out a crayon.

1. **Look at the swings. Put an X on the third swing.**
2. **Look at the trees. Put an X on the fourth tree. Put a circle on the first tree.**
3. **Look at the people on the bench. Put an X on the second person. Draw a ring around the fifth person.**
4. **Look at the slide. Put an X on the seventh step from the bottom of the ladder.**

Extended Activity

Have five children make a line of chairs. Have the children sit in the chairs and take turns saying their number names in order. Have them change places and tell their new number names.



22 Which One?

22

Purpose

To provide practice with the ordinals—first, second, third, and fourth.

Vocabulary

First, second, third, fourth, circle, triangle, square.

Developmental Activity

Draw a large rectangle on the chalkboard. Divide it into 12 boxes, 3 across and 4 down. Point to the top row. **This is the top row. What is another name for it?** [the first row or row number 1] **What is the number name for the next row** [2, the second row] Repeat and discuss.

Point to different boxes and have various children tell the number names for the box—for example, 2nd row, 1st box, or 3rd box, 1st row.

Continue until all the children can do the work orally.

Call a child to the chalkboard. Have him draw a circle, triangle, or square in one of the boxes. Then let him tell in which box he has drawn the figure. He might say, "My triangle is in row 2, box 3." Have several children do this.

Procedure

Point to each row in the book and have the group tell which row it is. Then tell the group that you are going to give the number location for a box and a shape to draw in the box. Have the children use a colored crayon for this activity.

Read the following: (Give the children time to draw each shape.)

Row 1, box 2, a triangle.
Row 4, box 3, a triangle.
Row 2, box 1, a circle.
Row 1, box 3, a circle.
Row 3, box 2, a square.
Row 4, box 1, a square.
Row 3, box 3, a triangle.
Row 1, box 1, a triangle.
Row 2, box 3, a circle.
Row 4, box 2, a circle.
Row 3, box 1, a square.
Row 2, box 2, a square.

Watch carefully as the group works to make sure that each pupil understands the directions and follows them correctly.

Purpose

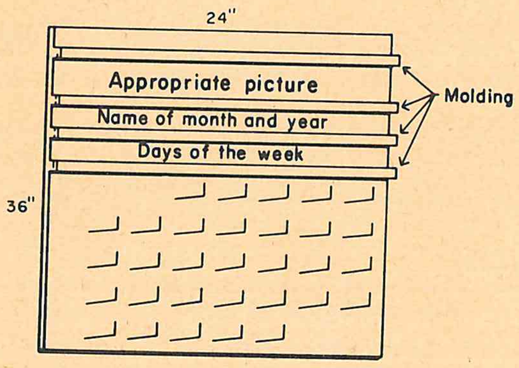
To become aware of the meaning of year, month, week, and day. To recognize that there is an orderly pattern in the development of a calendar and that the calendar is a device for measuring time.

Vocabulary

Day, days, month, year, Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, Saturday.

Materials

A large calendar drawn on the chalkboard. A large developmental calendar. Materials needed for this developmental calendar are a piece of 24″ x 36″ pegboard; 4 pieces of 24″ length picture-frame molding with grooves for inserting seasonal pictures, the month, the year, and the days of the week; "L" screws; and a supply of key tags for the numerals. It will look like this:



Developmental Activity

A good time for this lesson is the last school day of any month. It can be repeated throughout the year as often as the teacher feels it appropriate.

Who would like to choose a picture for the calendar? Who can take the name of the old month from the calendar? What is the name of the new month? Write it on the board. **Who can put the sign for the new month where it belongs?**

Shall we change the signs for the days of the week? Why not? On what days do we go to school? On what days is the school closed? How many days are in a week? Which is the first day? the second? third? fourth? fifth? sixth? seventh?

Let us remove all the tags from our calendar. Where should the numeral for the first day of this month be placed? Find the tag with the 1 on it. Hang it in its proper place. We will put the other tags in a box. Each day we will add the numeral for that day.

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday

Procedure

How is this calendar (page 23) **different from our class calendar?**

This is where the name of the month and the year are usually placed. What year is it? Write it on the board. **What month is it?** Point to the developmental calendar as an aid.

I will give each of you 2 signs—one with the month on it and one with the year. You may paste them here. Show where.

We will each take this page from our book and fasten it to a piece of cardboard. Every day as we add a numeral to our class calendar, you will add a numeral to your calendar, too.

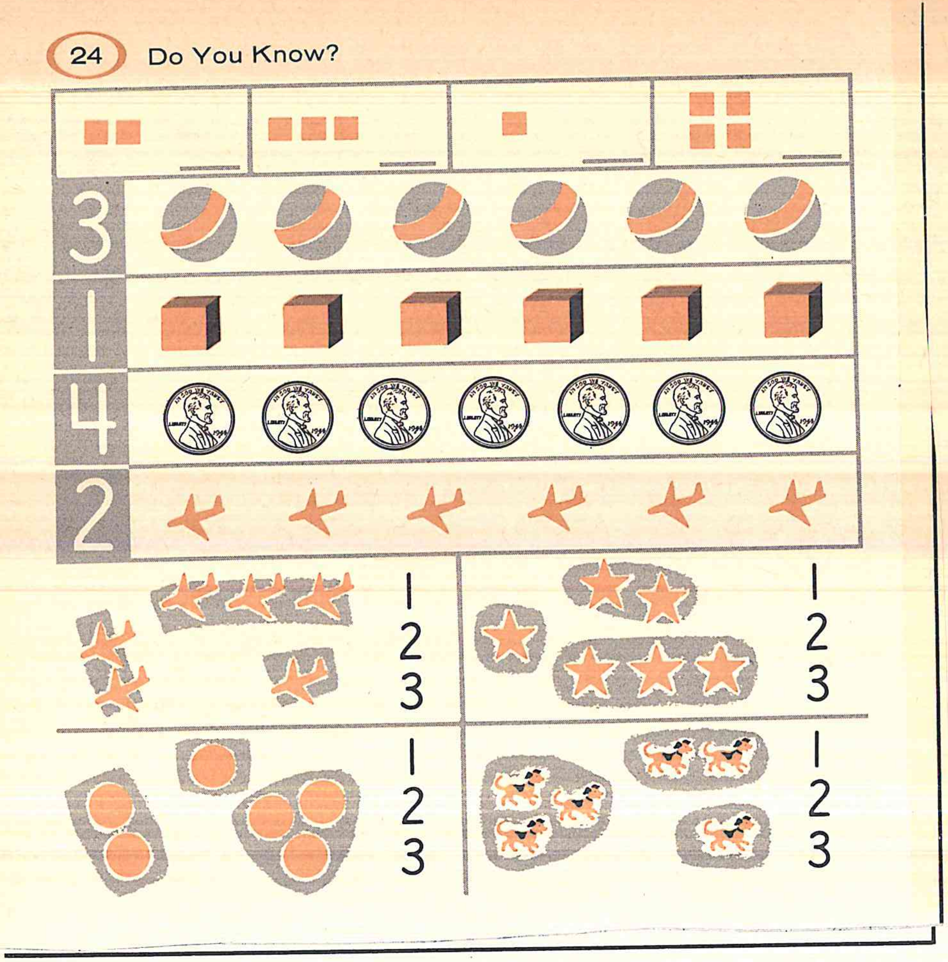
Extended Activity

Make calendars several times a year. Relate them to the weather, special holidays, birthdays, etc. As children grow in maturity, they may make a summary chart like this on the board:

School days
Saturdays
Sundays

Birthdays
Special holidays
Sunny days
Windy days

Rainy days
Snowy days
Foggy days



24

Purpose

This is a test designed to cover the ideas presented on pages 1 to 23.

The development of number ideas to this point has included the ordinals, first through tenth, and the ability to identify, compare, and reproduce groups of 1, 2, 3, or 4 things.

This test covers: identification—line 1; ordinals—lines 2–5; and comparison and identification on the bottom section of the page.

Procedure

Test the class in groups of 8–12 at a time.

Open your books to page 24.

Look at the top row. Next to each set of squares we will write the numeral that tells how many squares. What is the numeral for the first one? [2] **Write the numeral 2 on the line. Then write the other numerals in the first row.**

The next row has what numeral in front of it? [3] **With your crayon put an X on the third ball—ball number 3.**

Repeat for the next 3 rows.

Now look at the boxes at the bottom of the page. Point to these. **We will draw a line from each group to the numeral that tells how many are in that group.** Point to the 3 airplanes. **To what numeral should we draw a line?** [3]

Make sure the pupils understand the instructions. Before going on, review any ideas that individuals do not seem to understand.

25

Purpose

To develop the number sentence about 3 and to provide situations for group problem-solving discussions.

Vocabulary

Far away, close together, big, little, small, in a row, large, tallest, under.

Materials

12″ x 18″ paper for individual booklets, paper for mural.

Developmental Activity

Encourage the children to talk about their vacation experiences at a beach or lake.

Procedure

Let us open our books to page 25.

Allow time for looking at the picture.

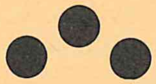
How many children do you see? [3] **What are they doing? Put an X on each of the children you see.**

How many spades or shovels do you see? [3] **How do you see them?** [1 in the girl's hand and 2 in the bucket]

Where are the balls? [1 is near and 2 are farther away.]

How many starfish have the children found? [3] **How do you see them?** [1 behind the boy, 2 at the bottom of the picture] **Draw a line from the smallest starfish to the largest starfish.**

I see something about 3 on the bucket. [It is a 3-group.] **Draw a ring around it.** Draw the form on the chalkboard:



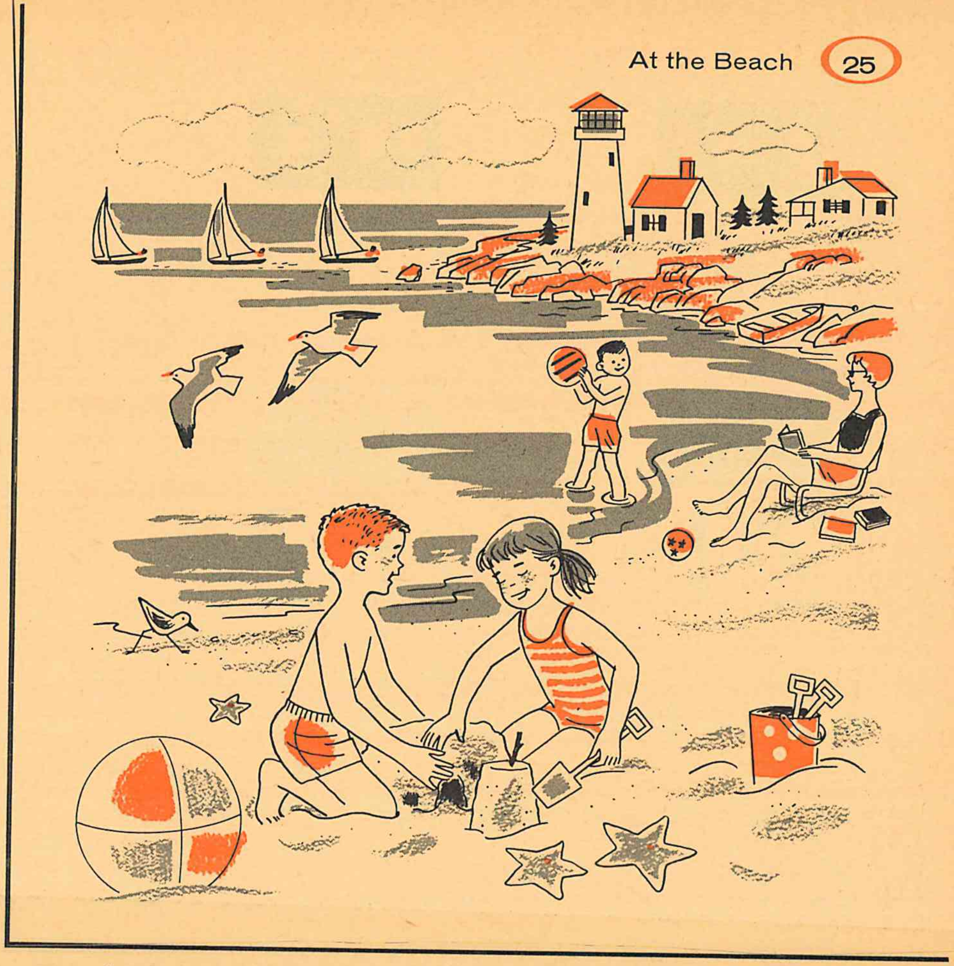
Do any of you see another 3-group? [stars on the ball]

How many buildings do you see? [3] **Are they alike?** [no] **How do you see them?** [2 close together and 1 by itself]

How are the sailboats placed? [in a row] **Draw a line under the boats. What other things are in a row?** [clouds]

Boys and girls, I am going to write a number sentence on the chalkboard. Write: 1 + 2 = 3. **We read it this way: One and two are three. For this sign** + (point to +) **we say "and." For this sign** = (point to =) **was say "are." Let's read it again, "One and two are three."** Write: 2 + 1 = 3. Have the children read it with you. **What kind of sentence is this?** [number sentence] **This year we will be reading many, many sentences like this.**

Now let us try some story problems. Two children are playing in the sand, and 1 boy is wading. How many children are there all together? [3]

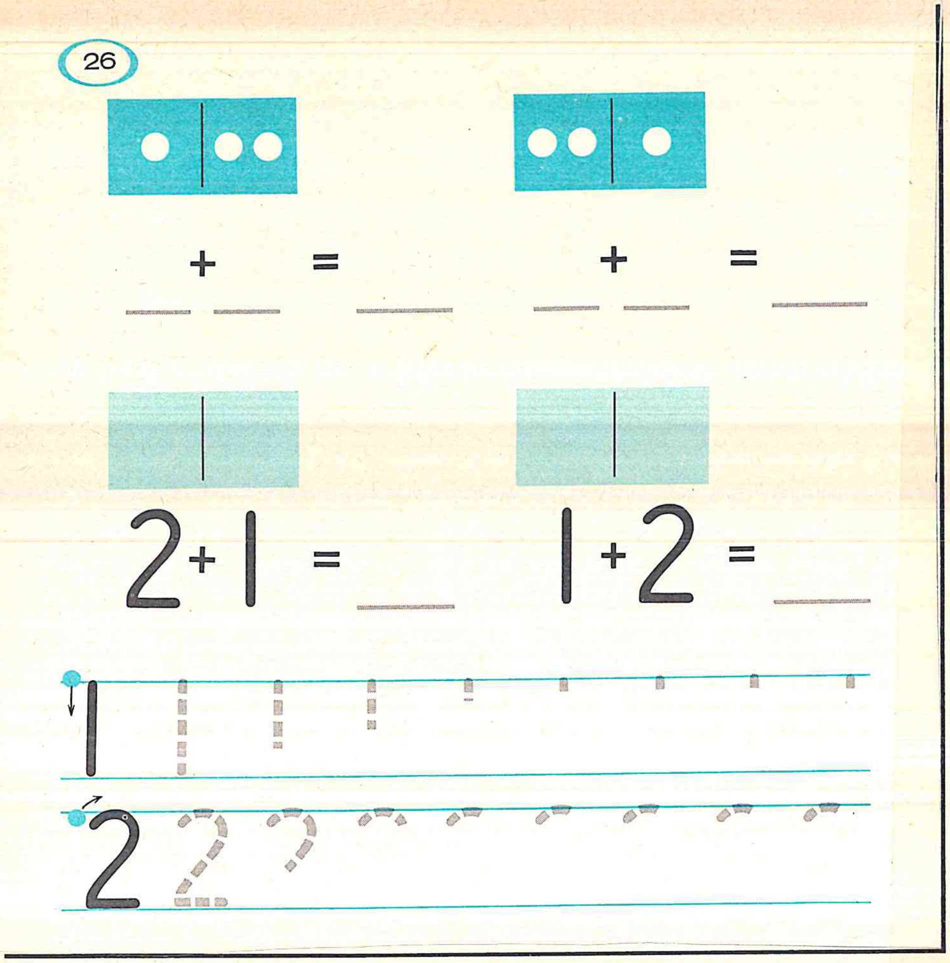


Two birds are in the air, and 1 bird is on the beach. How many birds are there all together? [3] Continue this, using other ideas. Keep the spirit of fun and enjoyment present.

Extended Activity

Let the children draw a beach scene on 12″ x 18″ paper. Give no instructions beyond asking them to show three-ness in their pictures. These pictures may be added to *My Arithmetic Book*. (See page 9.)

Some children may wish to make a big beach mural. Tack a large sheet of paper to the bulletin board and encourage children to express three-ness.



26

Purpose

To introduce the addition facts in the 3-group.

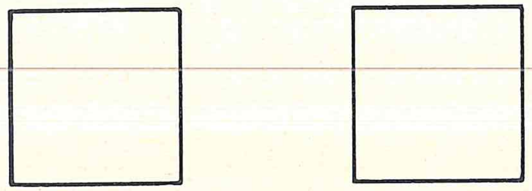
Vocabulary

Number sentence.

Developmental Activity

For the development of the addition and subtraction facts in the text, domino patterns will be used. Prior to their use, the facts will be introduced via the *number sentence,* using squares.

Put 2 squares on the chalkboard:



Say, **“One and one are two”** and write: 1 + 1 = 2.

Boys and girls, this is a number sentence. We read it, “One and one are two.” Let’s all read it together. Point to each numeral and sign as it is read. Repeat.

Refer to the primers or preprimers and experience charts used by the class. Make an effort to relate the idea of a number sentence to other kinds of sentences.

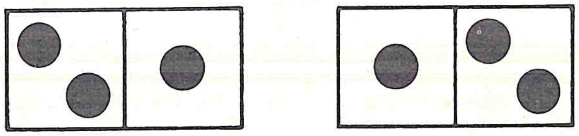
Now take out 3 counters. Put them in a row like this: 0 0 0. How can you group your counters in another way to make 3? [0 00] Demonstrate and talk at the same time. **We write this: 1 + 2 = 3.** Demonstrate on the chalkboard. **Who can read this number sentence?**

Give several children chances. Then have the group read it together while they point to their counters.

Can we make up another number sentence about 3? Write: 00 0. **We write this: 2 + 1 = 3. Who can read this number sentence?**

Some child may suggest that 1 + 1 + 1 = 3. If this happens, develop the idea.

Put these domino patterns on the board:



Have the class tell the number sentences. Then write: 2 + 1 = 3 and 1 + 2 = 3 on the board. Have several pupils read each of these number sentences and then point to the appropriate domino pattern for it.

Procedure

Look at the dot pictures at the top of page 26. Write the number sentence for each one.

Look at the number sentences in the next row. Make the correct dot picture for each one. Then finish each number sentence.

Then finish writing the row of 1’s and the row of 2’s at the bottom of the page. Work neatly.

Extended Activity

Have the pupils make up all the number sentences they can for 3. Then have them draw dot pictures to illustrate the number sentences.

27

Purpose

To develop the subtraction idea with pictures.

> Subtraction may be thought of as *take away, comparison,* or *finding the missing addend.* In this lesson it is developed as *take away* and *finding the missing addend.*
>
> Do not use the word *subtraction* in this lesson.

Vocabulary

Take away, more.

Developmental Activity

Use cutouts or rabbits, ducks, etc. on the flannel board or toy automobiles on the table.

Put 3 objects on the flannel board. Have 1 fly or run away. Remove it. **There were 3 rabbits and 1 ran away. That leaves 2.** Repeat for 2 — 1.

Reverse the process to review the addition facts: 2 + 1 = 3, 1 + 2 = 3, and 1 + 1 = 2.

Have the children take out 3 counters and show the following:

3 take away 1 leaves 2
3 take away 2 leaves 1
2 take away 1 leaves 1.

Reverse the process:

1 and 2 are 3
2 and 1 are 3
1 and 1 are 2.

Then introduce the wording for the missing addend type of subtraction:

1 and how many more are 3?
2 and how many more are 3?
1 and how many more are 2?

Procedure

Open your books to page 27. This is a discussion page.

Look at the first picture on the left. Point to it. **How many mice are there?** [3] **How do you know?**

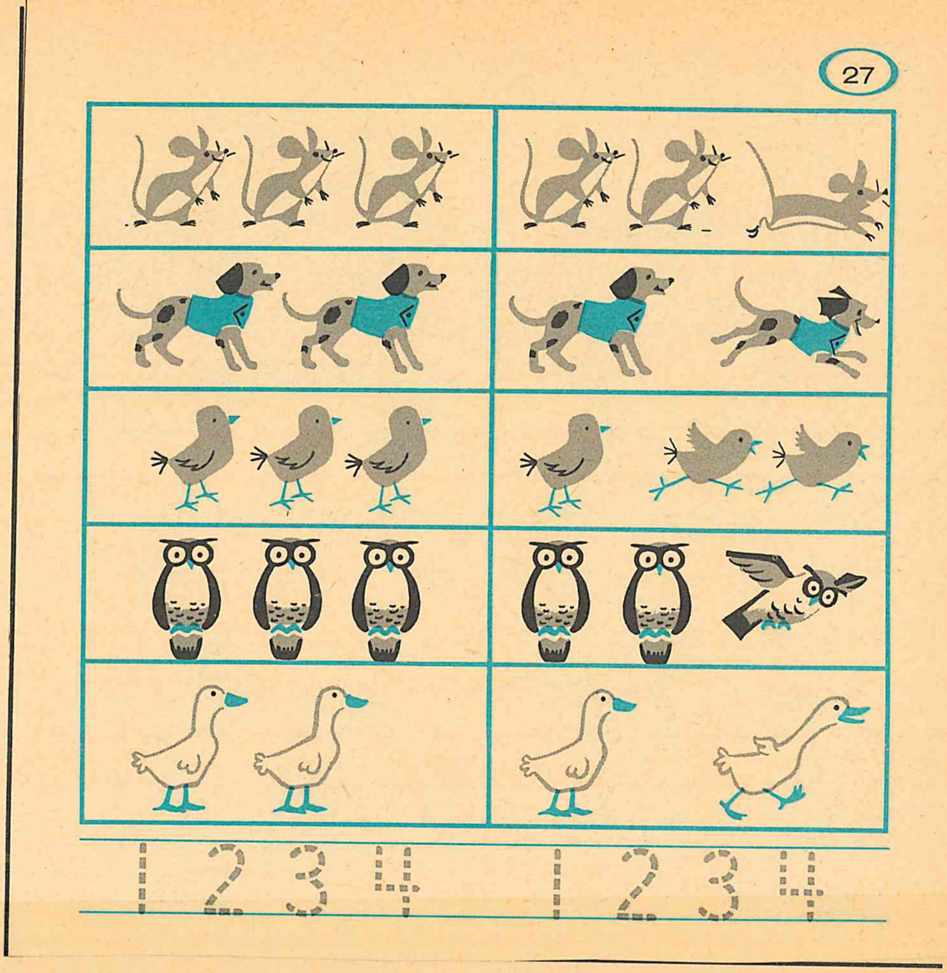
What is happening in the next picture to the right? [1 mouse is running away.] **How many does that leave?** [2]

Repeat this procedure for the other pictures.

Then have the children write the numerals at the bottom of the page.

Extended Activity

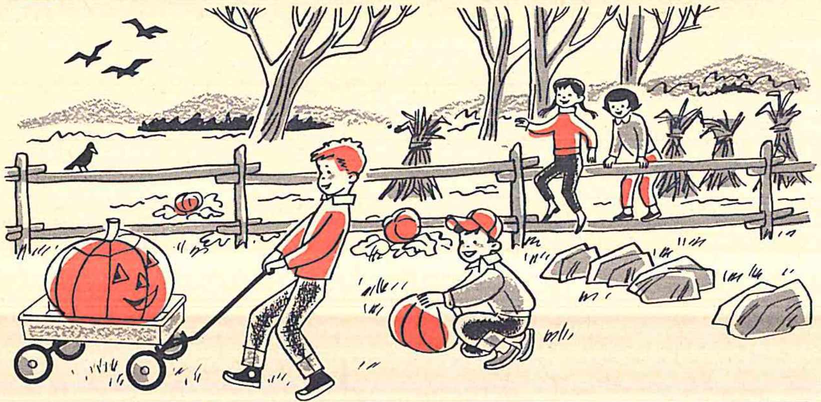
Fold sheets of 24″ x 36″ newsprint into 4 windows. Have pupils illustrate "How many are left?" stories by cutting pictures out of old magazines and pasting them in the windows.

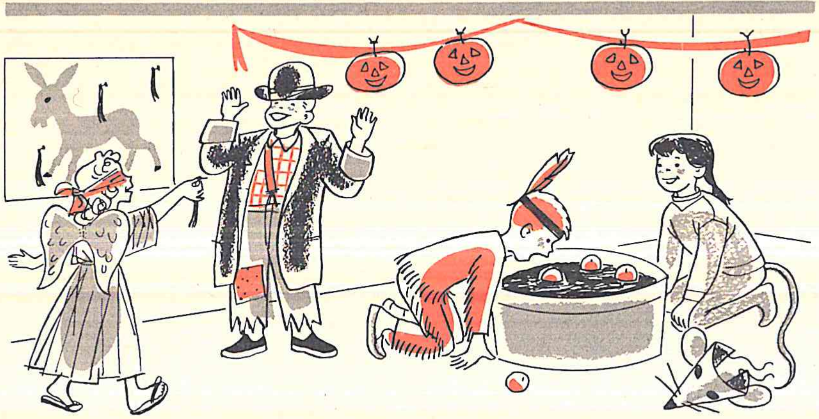


Material needed: old magazines, scissors, paste, 24″ x 36″ newsprint.

Discuss the children's work. Let each pupil tell his stories.

28 Halloween Fun





28

Purpose

To develop the number sentence about 4 and to provide an opportunity for making up verbal story problems.

Vocabulary

Next, top, all together, closest, beside, under, below, over, round, heavy.

Materials

Paper for a mural, paper for the scrapbook page.

School Halloween activities must be carefully planned so that they provide rewarding experiences without becoming too time consuming.

Taking a trip to the market to buy a pumpkin and making a jack-o'-lantern in the classroom would give meaning to the learning on this page.

Procedure

Look at the picture at the top of page 28. Are the children in the city or country? How do you know?

Have any of you ever grown pumpkins? How many pumpkins do you see growing near the fence? [2] **Are there other pumpkins in the picture?** [yes] **How many?** [2] **How many pumpkins all together?** [4]

How many children do you see? [4] **How do you see them?** [2 children in front of the fence and 2 children on the fence] **Put an X on the 2 children on the fence. I will write the number sentence on the chalkboard. How many remember how to read it?** [2 and 2 are 4.]

Point to the pumpkin that is farthest away. Point to the pumpkin that is closest to you. What happened to the biggest pumpkin of all?

Show me how big the jack-o'-lantern is. Who can tell me the shape of his eyes and nose? [triangles] **Find something in our room that is the same shape. What shape is the mouth?**

Now put a mark on the crow sitting on the fence. How many other crows do you see? [3] **Put a circle around all the crows. How would we write this number sentence? Like this: $1 + 3 = 4$? Say it! One and three are four.**

How many rocks do you see? [4] **How do you see them?** [3 close together and 1 by itself] **Draw a ring around the rocks. Who can say the number sentence?** [3 and 1 are 4.] **Who would like to write it on the chalkboard?** [$3 + 1 = 4$]

Who would like to make up a story problem about the pumpkins?

Now suppose we look at the picture below. It is a picture of a party. Do you know what kind of party it is?

What are the children doing? [2 are pinning the tail on the donkey, and 2 are bobbing for apples.] **Now who can write the number sentence about the children?** [$2 + 2 = 4$] **Who can read it?**

How many apples do you see? [4] **How do you see them?** [3 in the tub and 1 on the floor] **Who can write the number sentence about the apples?** [$3 + 1 = 4$] **Who would like to read the sentence?**

Other sentences and story problems may be made from this picture for children who need additional help.

Now take your counters and show me all the things you have learned about 4 today.

Extended Activity

Have the children draw a Halloween picture showing four-ness for the scrapbook. Also, have them draw a mural of Halloween fun showing four-ness.

29

Purpose

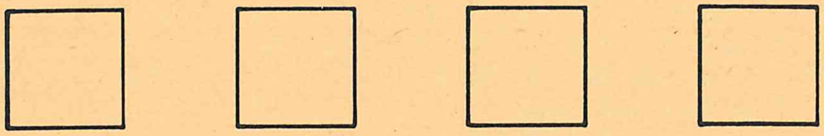
To introduce the number sentence as related to the 4-group.

Vocabulary

Straight, number sentence.

Developmental Activity

Have the class take out a set of 4 counters and put them in a straight row. Illustrate on the chalkboard:



Cover 2 of the squares. **How many squares do you see?** [2] Uncover the 2 squares. **How many squares do we have now?** [4] **We write the number sentence for this story this way:** 2 + 2 = 4. Put it on the chalkboard. **We read this number sentence: "Two and two are four."** Point to each element of the sentence as it is read.

What other number sentences can we write about 4? The children will suggest 3 + 1 = 4 and 1 + 3 = 4. Have the class work orally.

A flannel board is very useful at this point. Put a 3-group and a 1-group on the flannel board. **What number sentence tells this story?** [3 + 1 = 4] Have the class say the number sentence as each subgroup is pointed to. "Three and one are four."

Now reverse the groups: 1 and 3. **What number sentence tells this story?** [1 + 3 = 4] Have the class say the number sentence as each subgroup is pointed out. "One and three are four."

This is how we write the number sentence. Put 3 + 1 = 4 on the chalkboard. As you point to it, have the class read each symbol. Repeat for 1 + 3 = 4, 2 + 1 = 3, 1 + 2 = 3.

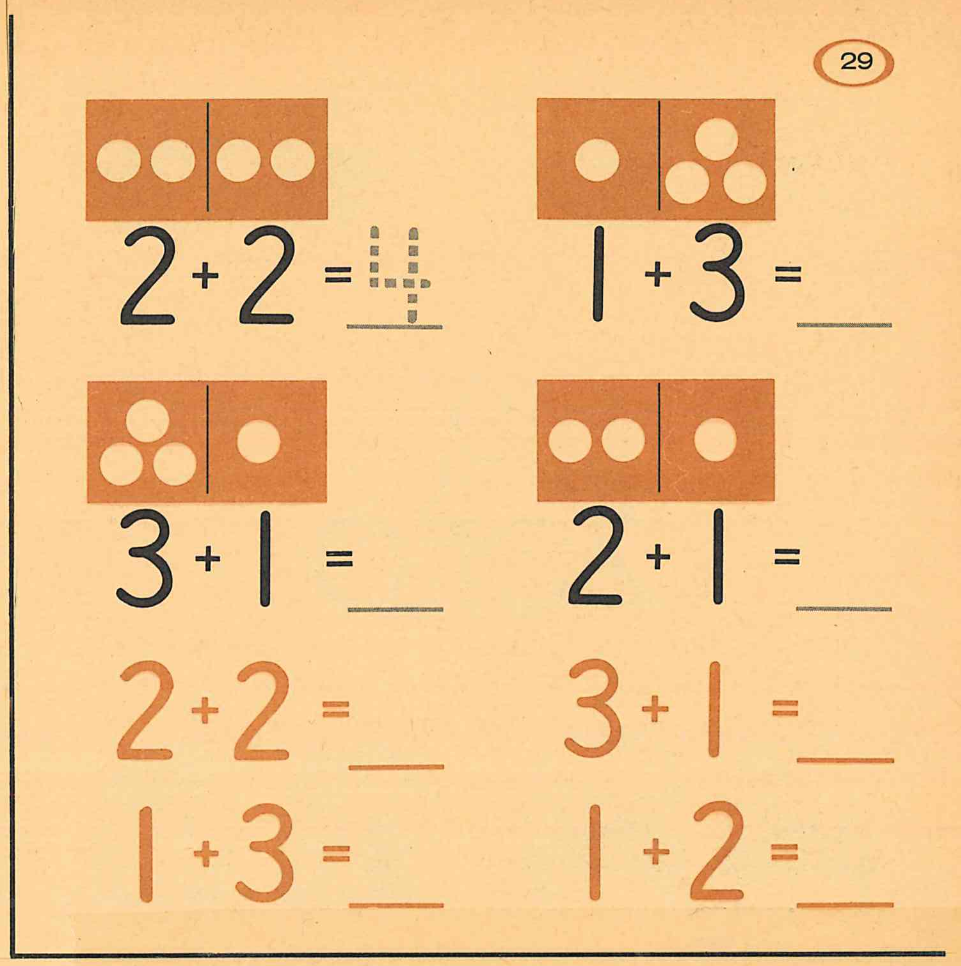
Procedure

Now turn to page 29 in your books.

Look at the dot pattern on the top left-hand side. What does the number sentence under it say? [2 and 2 are four.] Have the class read, "Two and two are four." **Write the numeral 4 with your crayon.**

Can you finish the others? Write neatly.

Move about the group and give help as needed. On the bottom rows have the pupils use their counters, if they wish to do so, to help them finish the number sentences.



29

2 + 2 = 4

1 + 3 = ___

3 + 1 = ___

2 + 1 = ___

2 + 2 = ___

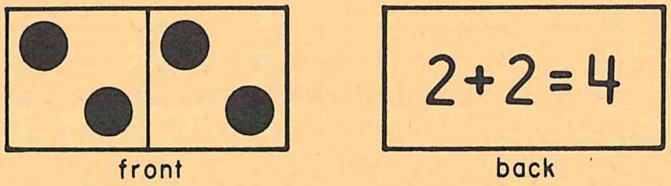
3 + 1 = ___

1 + 3 = ___

1 + 2 = ___

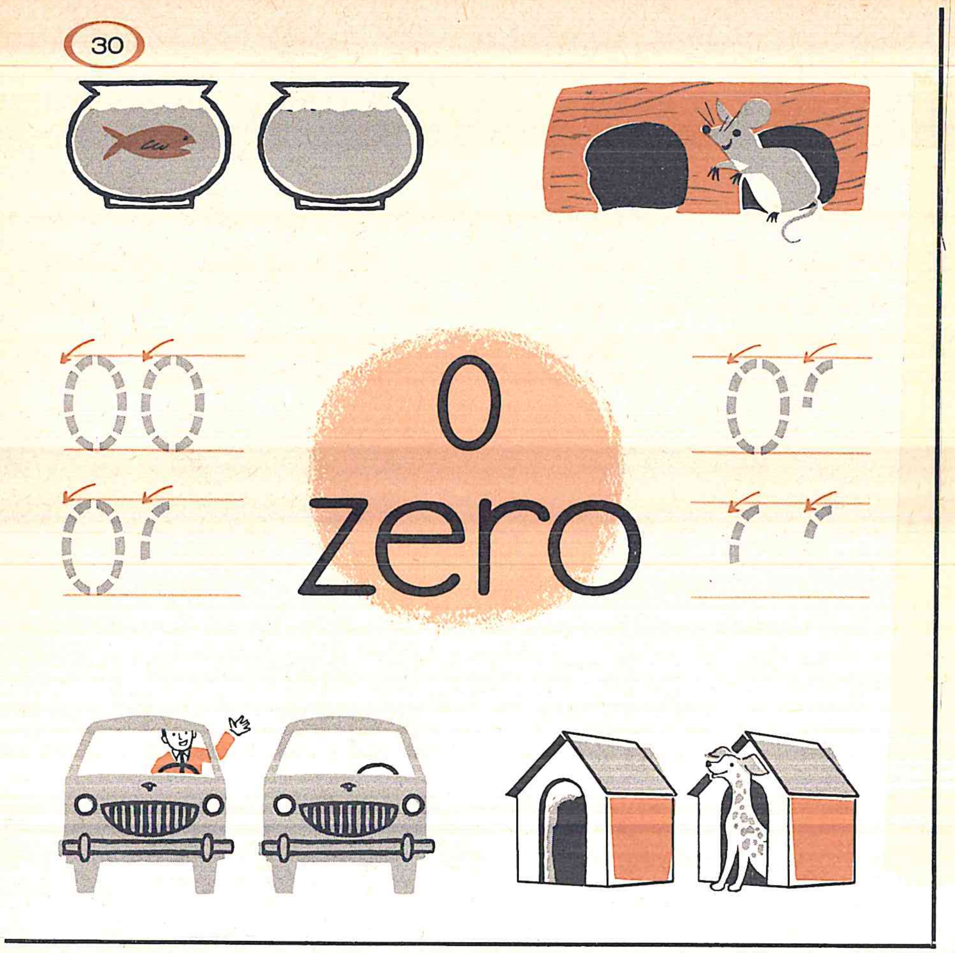
Extended Activity

Make flash cards with the dot patterns on one side and the number sentence on the other. Have small groups take turns reading them.



front

back



30

Purpose

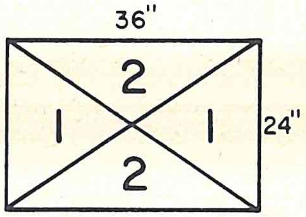
To develop the meaning of zero as *not any* and to teach how to write the numeral 0.

Vocabulary

Zero, not any, score.

Materials

2 bean bags. A 24″ x 36″ piece of tagboard marked as shown.



Developmental Activity

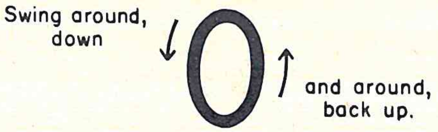
Fasten the tagboard to the floor with masking tape at the corners. Draw a throwing line 3 feet away.

Each member of the group gets 2 throws. A scorekeeper records the scores on the chalkboard. (Give help as needed.)

Rules: If a bean bag lands on the line, give credit for the larger number.

The first time a child misses the target entirely, the idea of zero as *not any* should be introduced. ______ **just missed the target. What numeral can we write to show the score?** Discussion at this point usually brings out *zero.* If it does not, introduce the word and write the numeral 0 on the chalkboard.

This is how we write the numeral for zero.



Have each member of the group practice writing 0 with his forefinger on the desk. Then have the scorekeeper record the score as 0. **The zero tells us that** ______ **had a turn and did not score any points.**

Play until each pupil has had 2 throws. Change scorekeepers several times. Have the scores recorded as follows: 2.

Say, **"Two points and not any more points are two points."**

2
0
―
2

> Zero here means *not any*. The idea that zero means *nothing* is fallacious. Here zero means that *no score was made*. Great care must be exercised to develop this point correctly.

Procedure

Open your books to page 30.

What is the numeral in the middle of the page? [0] **What is the number word under it?** [zero] **Let's read it together—zero. Draw a line under the word "zero."**

Find the 2 fishbowls at the top left-hand corner of the page. Put an X on the one that has zero fish in it—the one that does not have any fish in it.

Find the mouse holes. How many mice are in the hole on the left? [0] **How many are in the hole at the right?** [1] **There are not any mice in the hole at the left. Put an X on the empty mouse hole.**

Find the automobiles. How many people are in the first car on the left? [1] **How many people are in the second car?** [none] **What numeral tells us none?** [0] **Put an X on the empty car.**

Look at the dog houses. What numeral tells how many dogs are in the first or left dog house? [0] **What numeral tells how many dogs are in the second or right dog house?** [1] **There are not any dogs in the first house. Put a ring around the empty dog house.**

Now look at the chalkboard. This is how we write the numeral 0. Start at the top. Swing around down and around back up.

(*Continued on next page.*)

(*Continued from page 30.*)

Put a model zero, with arrows, on the chalkboard.

Have the group practice making 0's with their forefingers on the desk top. **Now look at the rows of unfinished 0's on the page. Finish making the 0's.**

Circulate and give help as needed.

Extended Activity

Send home a sheet with instructions for the bean bag game. Encourage pupils to play it with their parents or older brothers and sisters.

31

Purpose

To develop the ideas that: (1) when zero is added to a number, the answer is the number; (2) when a number is added to zero, the answer is the number.

Vocabulary

Zero, not any, score.

Materials

Bean bag game used in previous lesson.

Developmental Activity

Let five or six children in turn take 2 throws with the bean bags. If no child scores a zero, you should take 2 turns and miss on one of them so that the score is 1 and 0 or 2 and 0. At this point turn to the chalkboard and write the appropriate number sentence. Read it: **One (two) point and not any points are one point.** Then write on the chalkboard the examples in the first column below. Have pupils take turns giving the answers.

$1 + 0 =$ ______

$2 + 0 =$ ______

$3 + 0 =$ ______

$4 + 0 =$ ______

$0 + 1 =$ ______

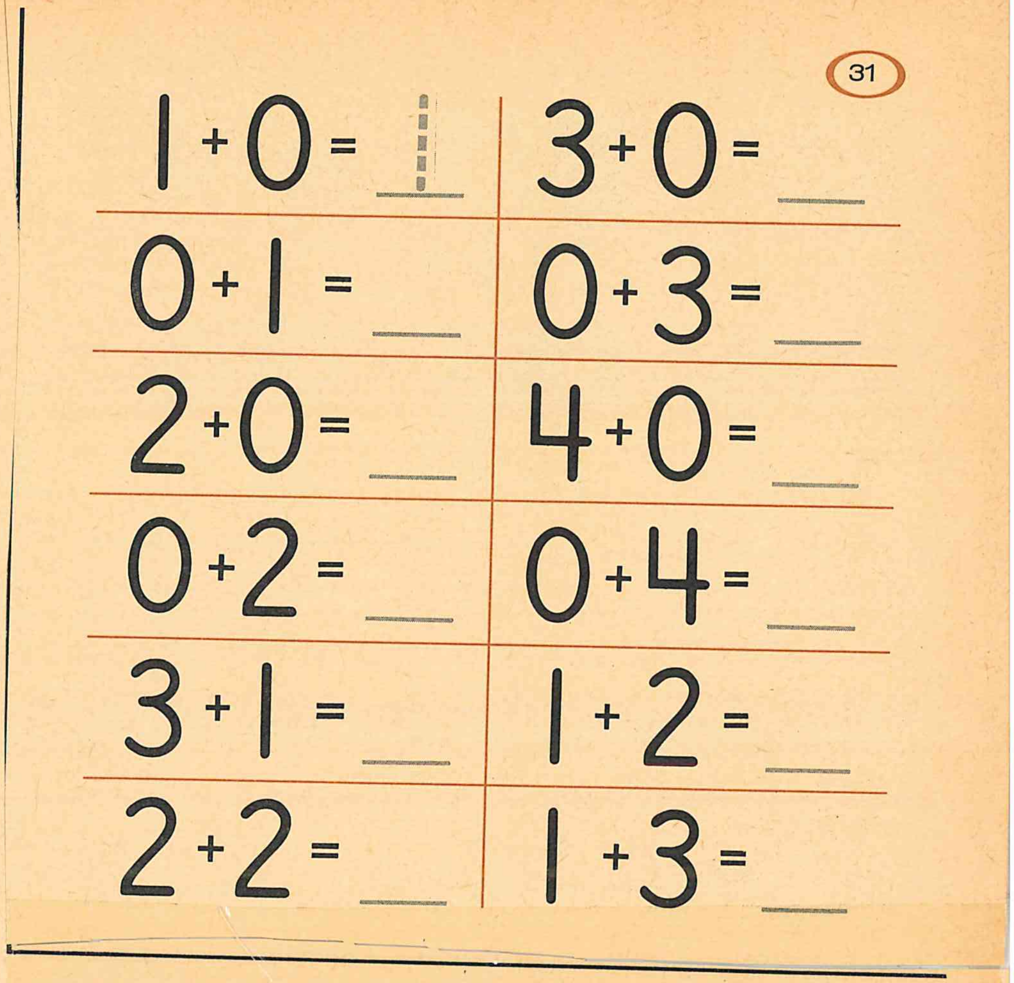
$0 + 2 =$ ______

$0 + 3 =$ ______

$0 + 4 =$ ______

Can anyone make a rule about adding zero and a number?

> Lead the children to discover that, with addition facts, if 0 is one number, the answer is the other number. This rule should be stated in their own language.



31

1 + 0 = 1

0 + 1 = ___

2 + 0 = ___

0 + 2 = ___

3 + 1 = ___

2 + 2 = ___

3 + 0 = ___

0 + 3 = ___

4 + 0 = ___

0 + 4 = ___

1 + 2 = ___

1 + 3 = ___

What happens if we turn the number sentence around? Suppose we write it this way. (Write on the chalkboard the examples in the second column.) Have the pupils come to the board and write the answers.

Does it make any difference in which order we add the numbers together?

> Lead the group to discover that the order of adding does not affect the answer.

Procedure

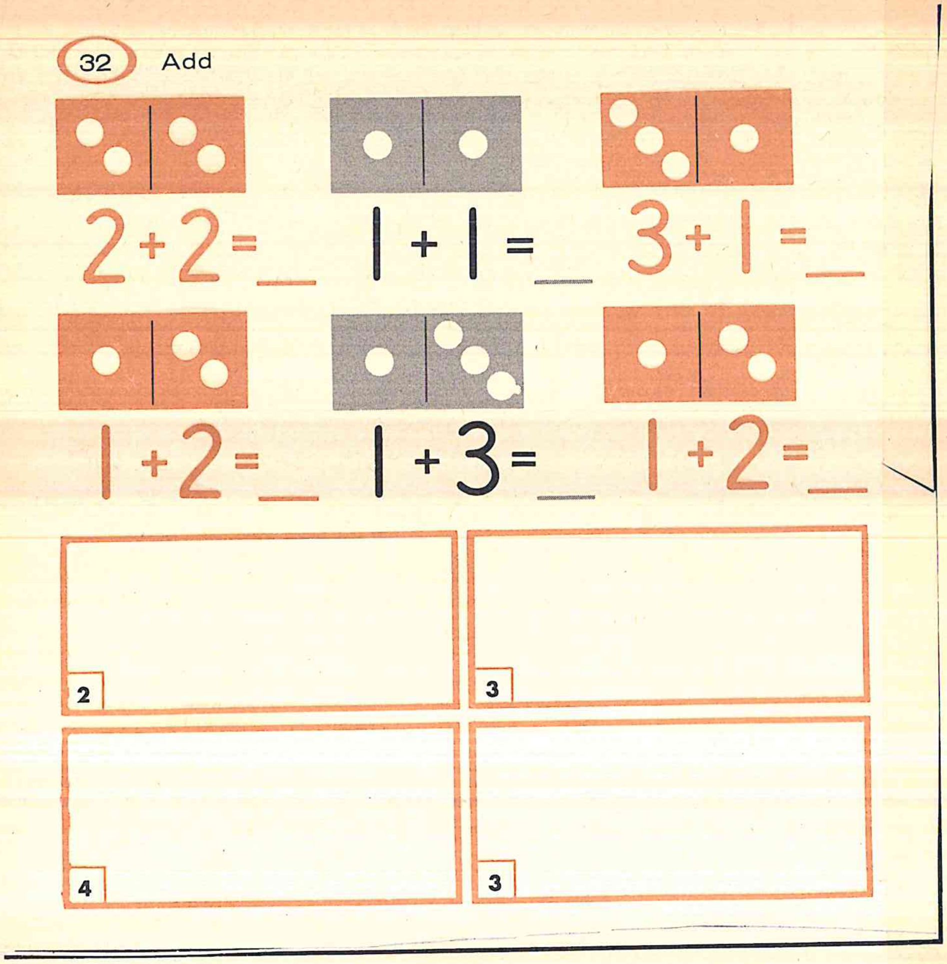
Open your books to page 31.

Who can read the first number sentence? [1 and 0 are 1.] Work each of the examples orally. **Do you think you can write the correct answers? Let us see how well we can do them.**

Are we sitting up tall? Circulate and observe the children's work, helping individuals as needed.

Extended Activity

Have the children take their papers home and tell their parents what they have learned.



32 Add

2 + 2 = ___

1 + 1 = ___

3 + 1 = ___

1 + 2 = ___

1 + 3 = ___

1 + 2 = ___

2

3

4

3

32

Purpose

To practice reading and completing number sentences for 2, 3, and 4.

Vocabulary

Add.

Developmental Activity

Put the six addition combinations (with answers) of 2, 3, and 4 on the chalkboard. Have pupils take turns reading them and showing them with counters at their desks:

2 + 1 = 3

1 + 1 = 2

3 + 1 = 4

2 + 2 = 4

1 + 2 = 3

1 + 3 = 4

Procedure

Let us open our books to page 32.

The word at the top of the page says add. It means to put together or join.

Look at the first dot picture. Who can finish the number sentence? [2 and 2 are 4.] **Now write the answer—4.**

Have the children complete each number sentence at the top of the page.

Now look at the bottom of the page. In each box draw a picture to show as many as the numeral in the box tells you. In the first box you will draw how many things? [2]

Extended Activity

Fold sheets of 9″ x 12″ newsprint into fourths. Have the pupils illustrate each number they have learned thus far—1, 2, 3, and 4.

Have children take turns telling how their pictures show the number idea.

Purpose

To develop readiness for number sentences using subtraction.

Vocabulary

Many, little.

Developmental Activity

(Do not use the word *subtraction* at this stage.)

Have each pupil put a set of 4 counters on the desk or table top. Have each pupil cover 1 counter with his hand. **How many are left?** [3]

Repeat this procedure covering 2 and 3 of the counters. Then repeat with a set of 3 counters, covering 1 and then 2 of the counters.

Procedure

Let us open our books to page 33.

Who can read the 2 words at the top of the page? [Take Away] **Now let's read them together as I point—"Take Away."**

Now look at the first picture in the top row. Hold up your book and point. **How many birds are in the first box?** [4] **How do you know?** Take time to let children explain how they see the 4. Some will count, some will group, some will know the particular 4-pattern.

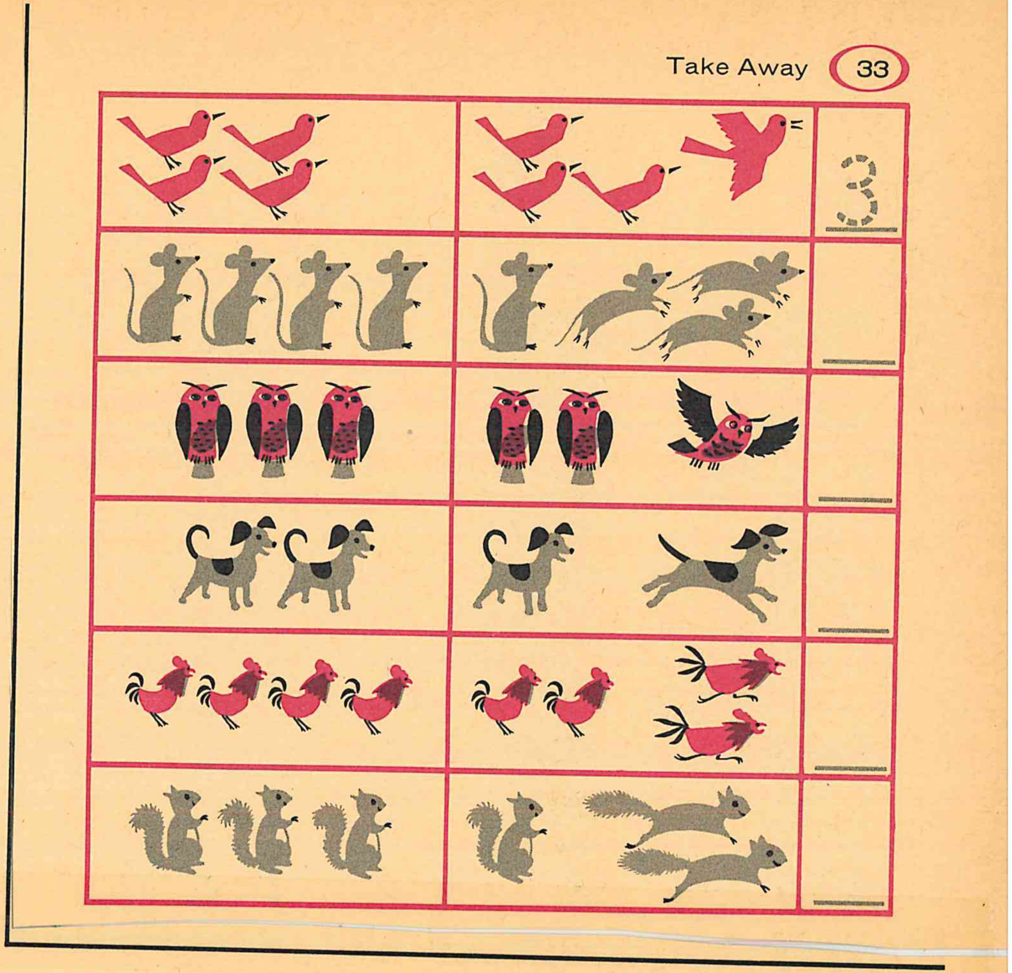
What happens in the next picture? Point. [1 bird is flying away.] **If 1 bird flies away,** (cover him with your hand) **how many are left?** [3 are left.]

See, there is a place for a 3 in the little box at the end of the row. Point to the box.

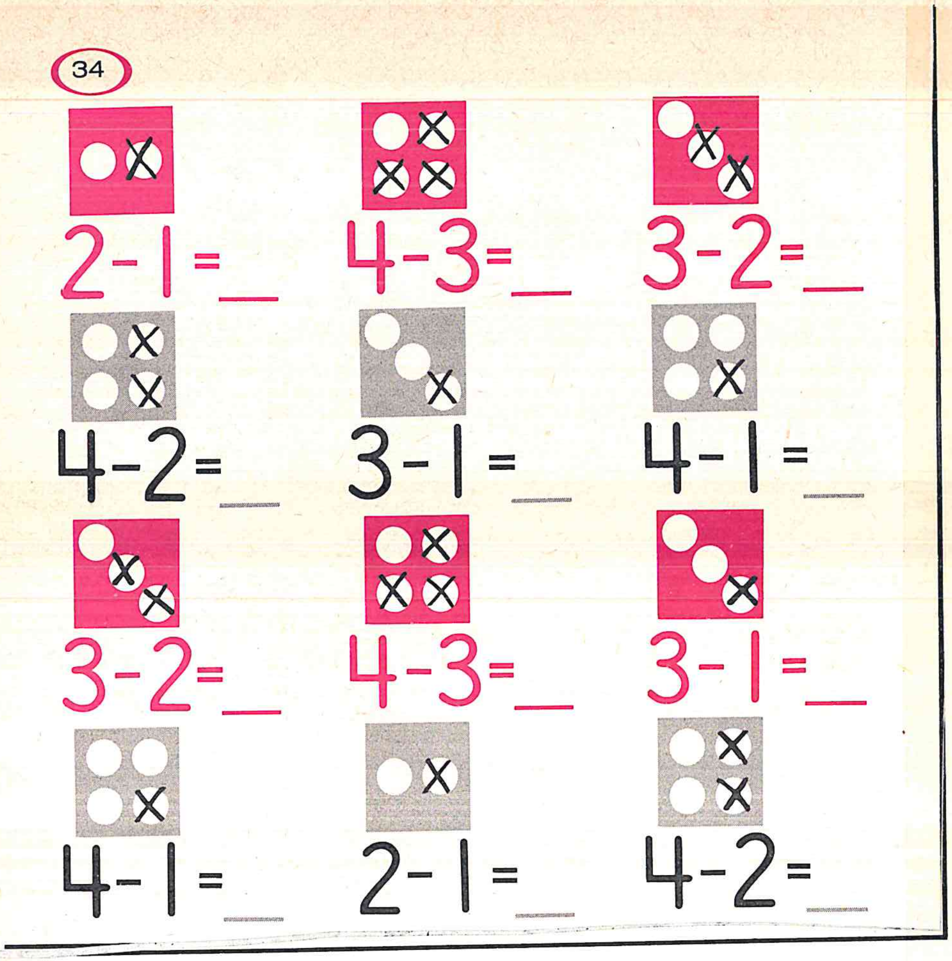
Repeat this discussion for each row. Then have the group write in the answers for each row.

Extended Activity

Let the children, seated in a small group, take turns making up stories about toy automobiles. (A set of 4 toy automobiles or similar toys is needed.) Let each pupil demonstrate his story. For example: "I have four autos; one drives away; three are left."



Take Away 33



34

2-1=_ 4-3=_ 3-2=_

4-2=_ 3-1=_ 4-1=_

3-2=_ 4-3=_ 3-1=_

4-1=_ 2-1=_ 4-2=_

34

Purpose

To provide practice with the subtraction facts in 2, 3, and 4.

Materials

A set of counters for each pupil. A flannel board.

Developmental Activity

Put a set of 4 objects on the flannel board or chalkboard and have each pupil put 4 counters in front of him.

Today we are going to see how many number sentences we can make by taking away from this 4-group. Point. **If we each take away 1 of our counters, how many are left?** [3] **Who can say the number sentence?** [4 take away 1 leaves 3.]

This is how we write it. On the chalkboard write: 4 — 1 = 3. **Let's all read it together.** Point to each element in the sentence as the class reads.

What other number sentences can we make with 4 and take away? Repeat the above procedure for 4 — 2, 4 — 3. Then review 3 — 1, 3 — 2, and 2 — 1.

Procedure

Open your books to page 34.

Look at the first dot pattern in the top row. It tells a story. How many dots are in the box? [2] **One dot is crossed out. That shows 1 dot is taken away. How many dots are left?** [1] **Who will read the number sentence for us?** [2 take away 1 leaves 1.] **Write a numeral 1 on the line.**

Can you do the others? Let's see how well you can do. Are you sitting up tall?

Circulate and give help as needed. Have the children work out the answers with their counters if necessary.

Extended Activity

Make one set of Number Flash cards for each two pupils. Each set will contain the six subtraction facts in 2, 3, and 4:

2 — 1 3 — 2 4 — 2
3 — 1 4 — 1 4 — 3

On one side of a card put the number sentence. On the other side put a group picture, as shown:

Divide the class into groups of two. Have one child hold the cards while the other gives the answer. If a child has difficulty in completing a number sentence, have him use his counters.

After a few minutes, have the "card holder" and the "answerer" change off with each other.

35

Purpose

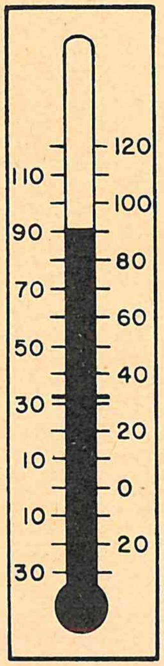
To help children recognize that the thermometer is a device for measuring how hot or cold something is. To show that temperature affects the activities of people, plants, and animals.

Vocabulary

Zero, high, low, down, up, lower, hot, cold, temperature, freezing, degrees.

(Continued on next page.)

(*Continued from page 34.*)



Materials

A strip of oaktag 7″ x 22″; one yard each of white and red ribbon, ½″ wide.

Place the oaktag lengthwise in front of you. One-half inch from the bottom, color or paste a red ball, 1″ in diameter, to represent the bulb of mercury.

Show the thermometer by drawing 2 vertical lines starting at the red ball. These lines should be ½″ apart and 18¾″ long.

Make degree lines ¼″ apart and mark them as shown at the left.

The scale should go from —30° to 120°. Indicate 32° as the freezing point of water.

Sew one end of the red ribbon to an end of the white ribbon. With the thermometer facing you, cut a slit at the top of it and slip an end of the white ribbon through. Cut a slit at the top of the mercury bulb and slip the red ribbon through. Pull and tape the ribbon ends at the back so the ribbon lies flat. By sliding the ribbon you may show temperature changes.

Developmental Activity

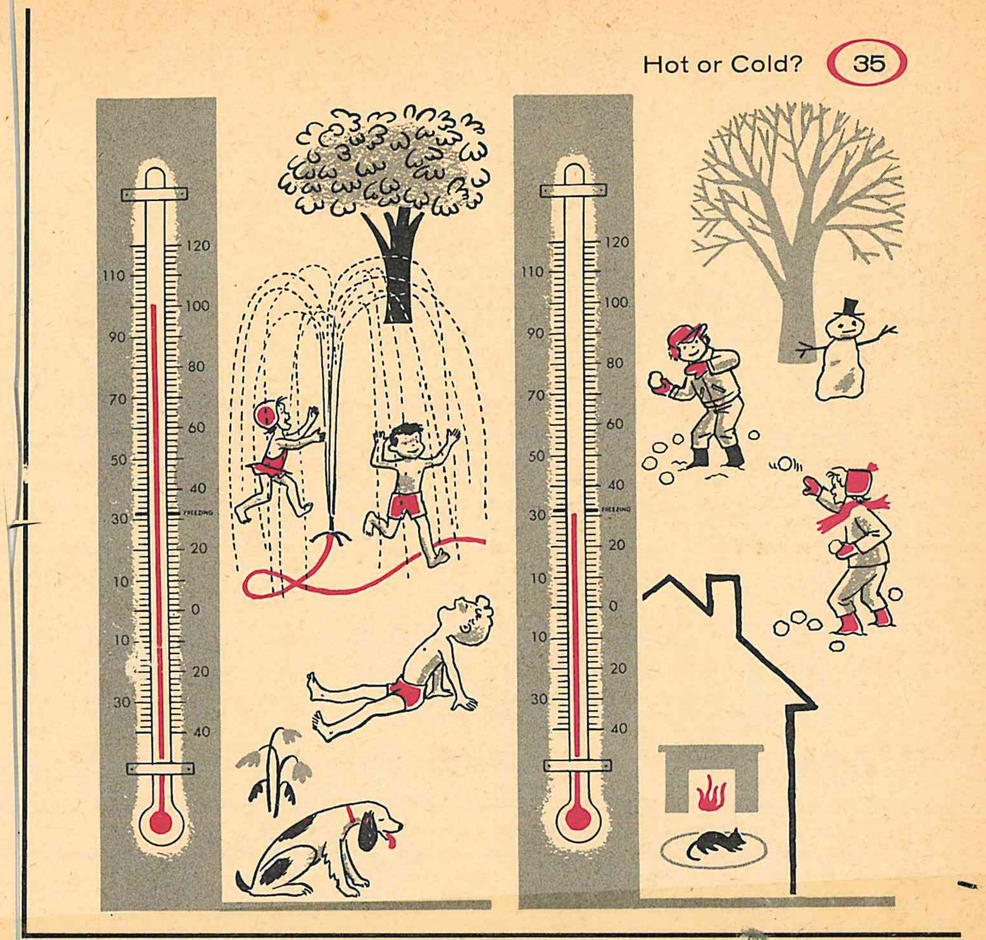
Show the children the large thermometer. Ask them if they have seen anything like it before. Find out what they know about thermometers. Explain the markings by degrees. Sometimes the temperature may be read to the closest number in units of 10. You may say, "It is about 60 degrees when the reading is 62 degrees." However, place the emphasis of this lesson on an awareness of the thermometer as a tool or device for measuring heat or cold and not upon learning to read a thermometer at this time.

Procedure

Open your books to page 35.

Let us look at the picture on the left-hand side of the page. What kind of day is this? [hot] **How do we know it is hot?** [sprinkler, the way the children are dressed] **Draw a ring around the children. What is drooping?** [flowers] **Draw a ring around the flowers. What does a dog do when it is hot?** [Pants, its tongue hangs out.] **Put an X on the dog.**

Now look at the thermometer. Do you think the thermometer reading is high or low? [high] **Put your finger where the red line stops.**



Let us look at the picture on the right-hand side of the page. How are the children dressed? [in snowshoes and galoshes] **We could say it is snowsuit weather. Draw a ring around the children. What is on the ground?** [snow] **What are the children playing with?** [snowballs]

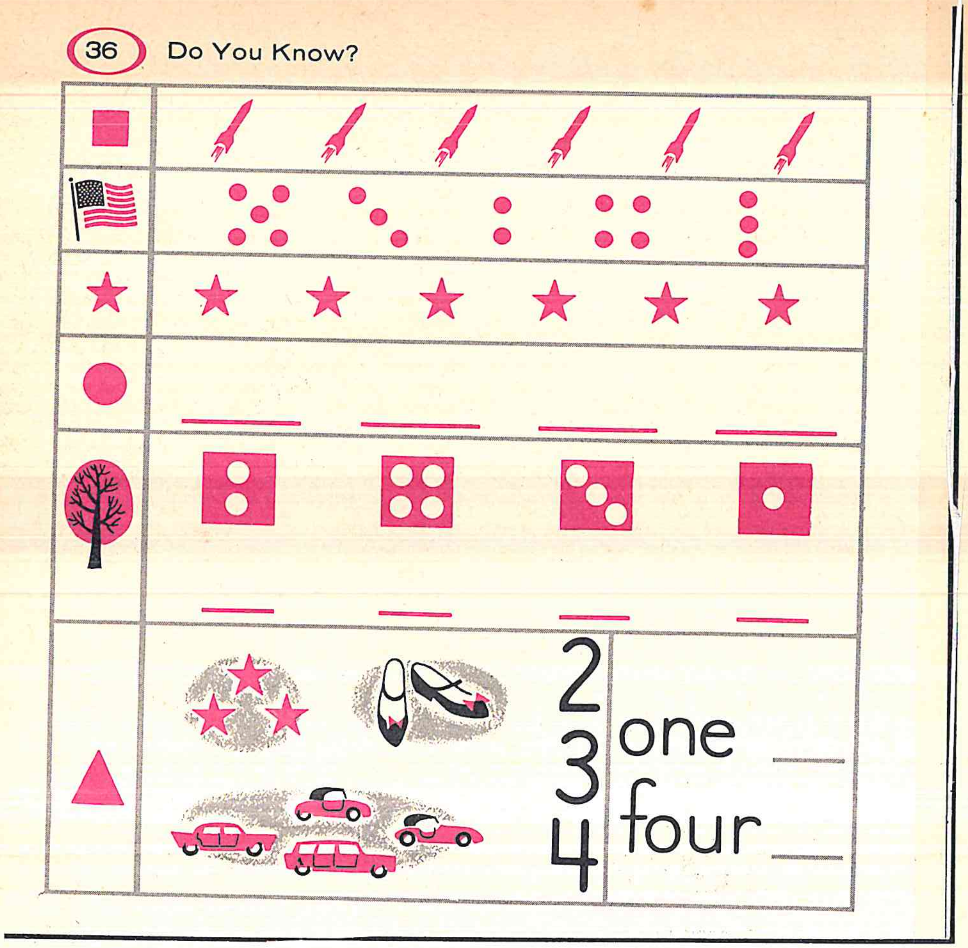
Now let us look inside a room in the house. When it is cold outside, what do people enjoy in their homes? [heat, fire, stove, fireplace, warmth] **What is lying on the rug in front of the fireplace?** [kitten] **Heat makes the kitten relax and he goes to sleep.**

Look at this thermometer. Is the red line longer or shorter than on the other thermometer? [shorter] **What does this mean?** [It is colder.] **We say the temperature has gone down, or we say the temperature is lower. Is it above or below freezing? Put your finger where the red line stops.**

Extended Activity

Ask the children to bring in pictures of other kinds of thermometers. Discuss their uses.

Collect pictures of children in sunsuit weather and snowsuit weather. Mount them on the bulletin board for discussion purposes.



36 Do You Know?

36

Purpose

This is a test designed to see if the group has learned the ideas presented on pages 25–35.

The development of number ideas in this section has included the ordinals through fourth, and the ability to identify, compare, and reproduce groups through 4.

Procedure

Test your class in groups of 8 or 12 at a time.

Open your books to page 36.

Look at the top row with the square in front of it. Point to the top row in the book. **Listen carefully. With your crayon (pencil) put an X on the fourth space ship.**

Look at the next row with the flag in front. Put a circle around the 4-group.

Look at the row with the star in front. Put an X on the third star.

Look at the row with the ball or circle in front. Write the numerals 1, 2, 3, and 4 on the lines.

Look at the row with the tree. Under each box write the numeral that tells how many dots are in the box above it.

Look at the row with the triangle in front. Draw a line from each picture to the numeral that tells how many are in the picture.

Then write the numerals that go with the number names.

Extended Activity

Review any ideas that the group or individuals do not seem to understand.

Purpose

To introduce the concept of "five-ness."

Vocabulary

Big, little, heavy, light, long, longer, longest, middle, far, farther.

Materials

24″ x 36″ paper, also 12″ x 18″ pages for scrapbook, magazine pictures of cars, either cardboard or flannel board cutouts, strips of sandpaper or flocking if needed, little cars if readily accessible. (The car carrier is a commercial toy.)

Developmental Activity

Read the story, "The Surprise Package," on page iii to the children. If flannel board figures are available, use them in developing the story. If not, discuss the picture. Also, encourage the children to talk about car carriers they have seen on the highway.

Let the children talk about packages they have received through the mail. Have them tell whether the package was long, short, heavy, or light. Did it come from far away? What was in it? Was it a gift for a birthday? for Christmas?

Procedure

If we study the picture on page 37 in our books very carefully, we can learn something new about Raymond and his surprise package.

Put an X on the biggest box. Show me with your hands about how long you think the box is. (This is approximation.) **How many other boxes do you see?** [5]

Draw a ring around 3 cars. How many cars are not in the ring? [2]

Draw a ring around the empty boxes. Are there any boxes that are not in the ring? How many? [1]

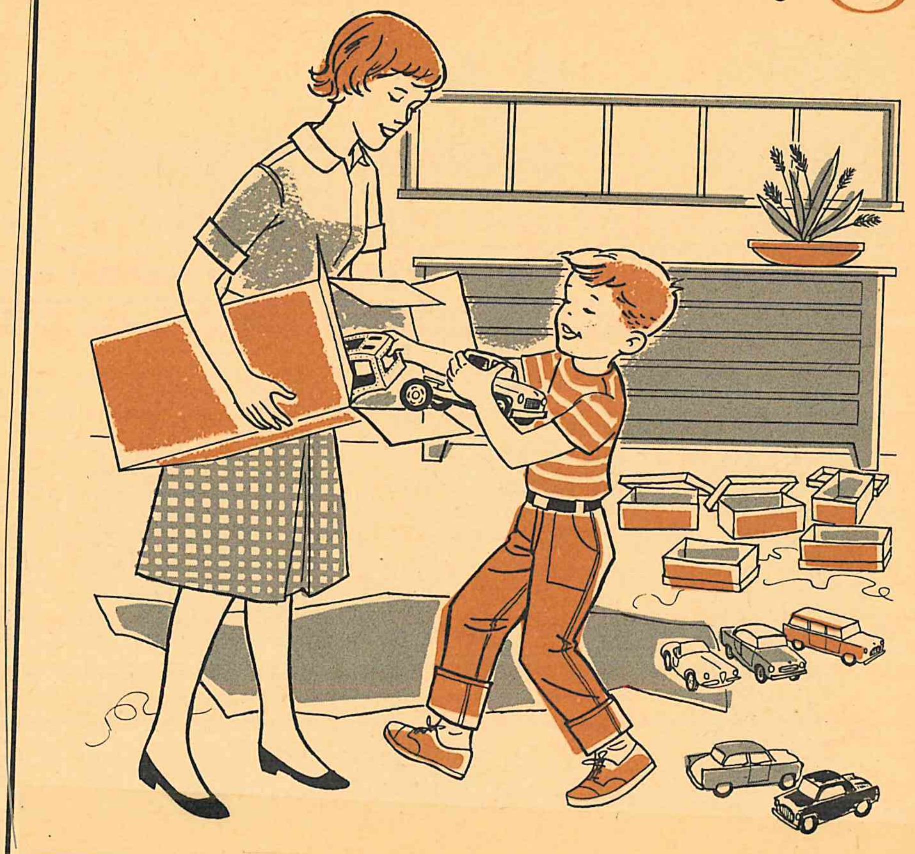
How many windows do you see? [5] **Mark each with an X.**

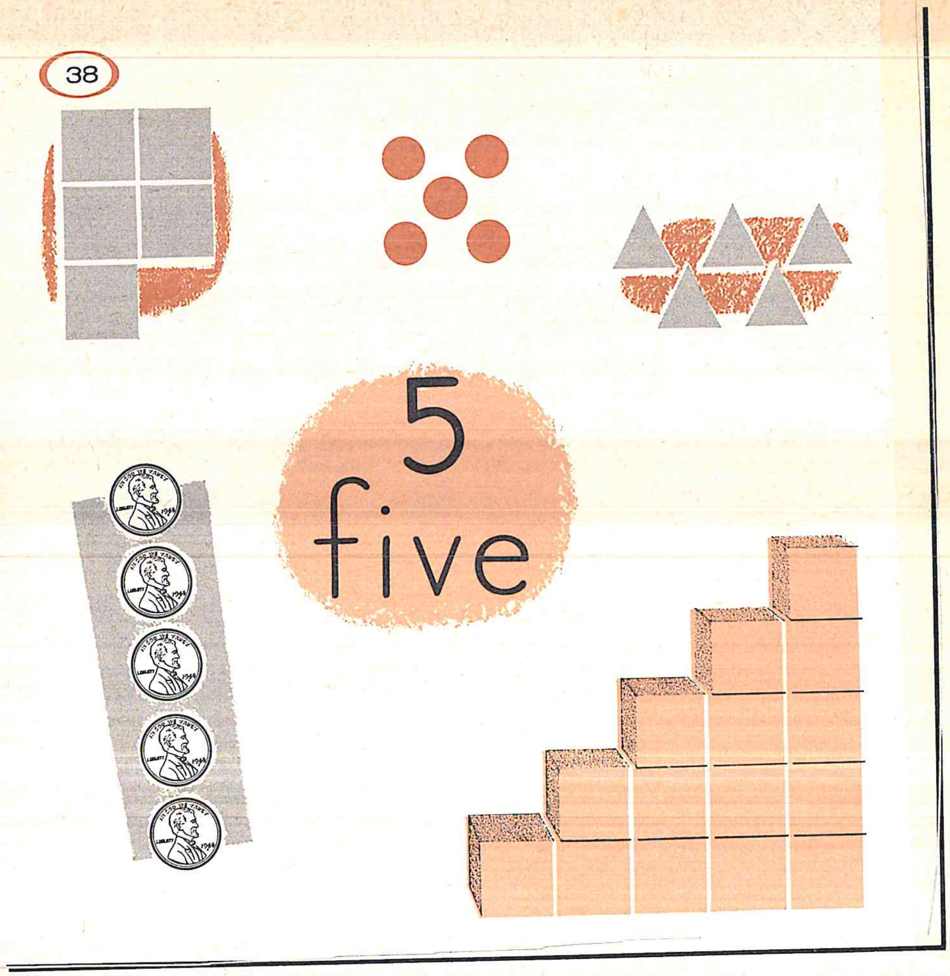
Extended Activity

Have several children retell the story using the flannel board. Variation can be had by introducing hand puppets to stand for the mother and the three boys. (The use of puppets often encourages shy children to express ideas.)

Add a page showing five-ness to the individual scrapbooks. Use either children's drawings or pictures cut from magazines. (This is the booklet begun on page 9.)

Have sheets of 24″ x 36″ paper available, each folded in squares 12″ x 12″. Children may work in groups to draw or paste pictures in each box to show five-ness.





38

Purpose

To develop the concept of five-ness. To identify five as a group in many patterns. To develop the structure of counting numbers by seeing that 5 is 1 more than 4, 4 is 1 more than 3, etc., and that 4 is 1 less than 5, 3 is 1 less than 4, etc.

Vocabulary

Penny, cent, square, triangle, less than, more than.

Developmental Activity

Start the lesson by having the class find as many examples of 5 things in the room as possible. For example, arrange 5 chairs at the table, have 5 girls come to the front of the room, etc. Emphasize the *structure* of each group through discussion.

Procedure

Let us open our books to page 38.

Look at the large numeral in the middle of the page. It is the numeral ______. [5]

Have the pupils identify and discuss the things on the page.

5 squares	**What kind of 5-pattern do the squares make?**
5 dots	**What kind of 5-pattern do the dots make?**
5 triangles	**What kind of 5-pattern do the triangles make?**
5 cents (pennies)	**What kind of 5-pattern do the pennies make?**

Who can find the number word five? Frame it with your hands. Let's read it together—five.

Now look at the number stairs in the lower right corner. Point to them. How many blocks are in the tallest stack in the number stairs? [5] **Five is how many more than 4?** [1] **Four is how many more than 3?** [1] **Three is how many more than 2?** [1] **Two is how many more than 1?** [1] **Each number is how many more than the one before it?** [1]

Four is how many less than 5? [1] **Three is how many less than 4? Two is how many less than 3?** [1] **One is how many less than 2?** [1] **Each number is how many less than the one before it?** [1]

Have the pupils take out a set of counters and make number stairs showing that the next higher number is always 1 more and the next lower number is always 1 less.

Extended Activity

Fold pieces of 12″ x 18″ newsprint lengthwise into 5 parts. Have the pupils draw birthday party ideas in the boxes. Tell them to draw 5 party hats, 5 cookies, 5 ice cream cones. Use suggestions from the children for the other boxes.

Purpose

To develop skill in identifying and reproducing the 5-group.

Vocabulary

Five.

Materials

Individual counters.

Developmental Activity

Have each pupil take out 5 counters and put them in a horizontal row: 0 0 0 0 0. **Five is 5 ones. What other patterns can we make?** Have pupils discover and see many kinds of groupings.

The discussion may be extended to the classroom environment if several groups of 5 have been previously arranged or provided.

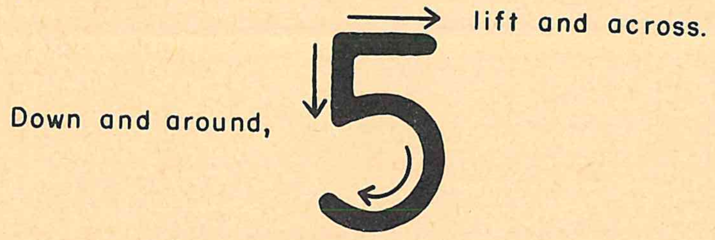
Procedure

Open your books to page 39.

What is the name of the numeral? [5] **What is the word after the 5?** [It is the number word that stands for 5.] **Look at it carefully and say it to yourself.**

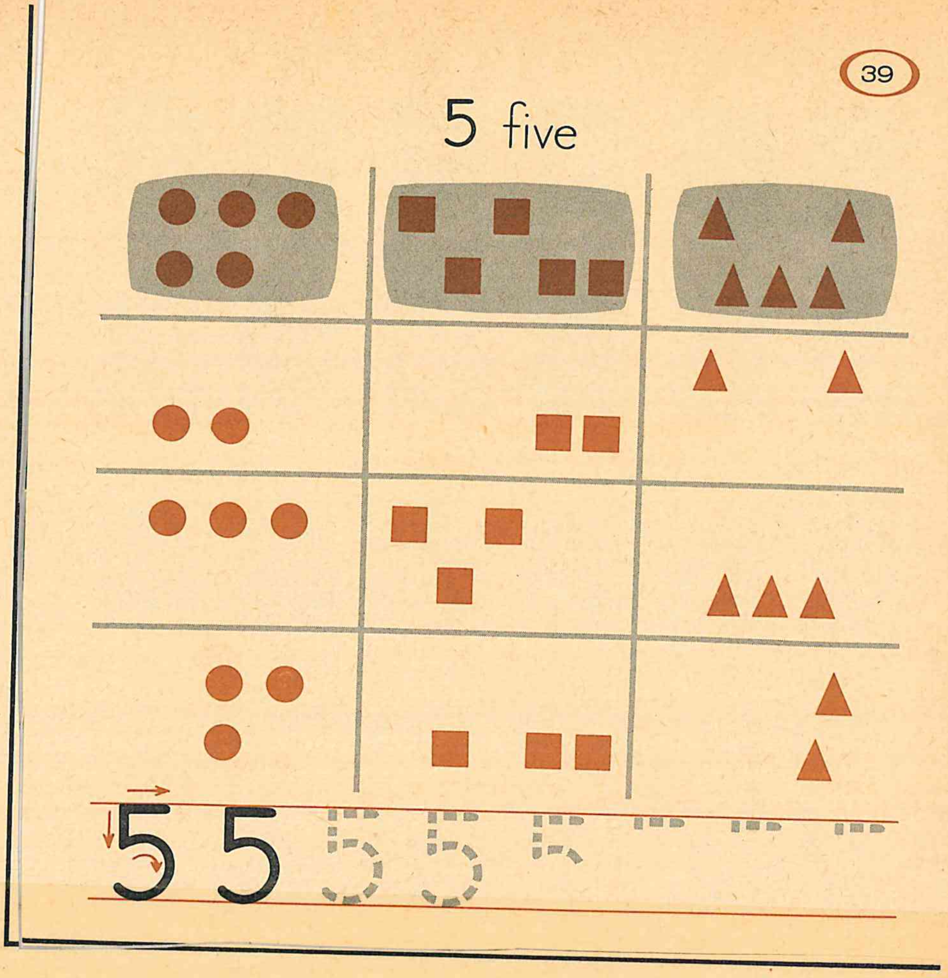
Now look at the top row of colored patterns. Each one of them shows 5 in a different way. In the boxes under each pattern are some patterns for us to finish. Look at the first one in the second row. It looks like this. (Draw its picture on the chalkboard.) **How can we make it look like the one above it?** [by drawing 3 dots like this] (Demonstrate this at the board.) **Take your crayon and draw the dots. Make the 5-pattern look like the one in the box at the top of the column.**

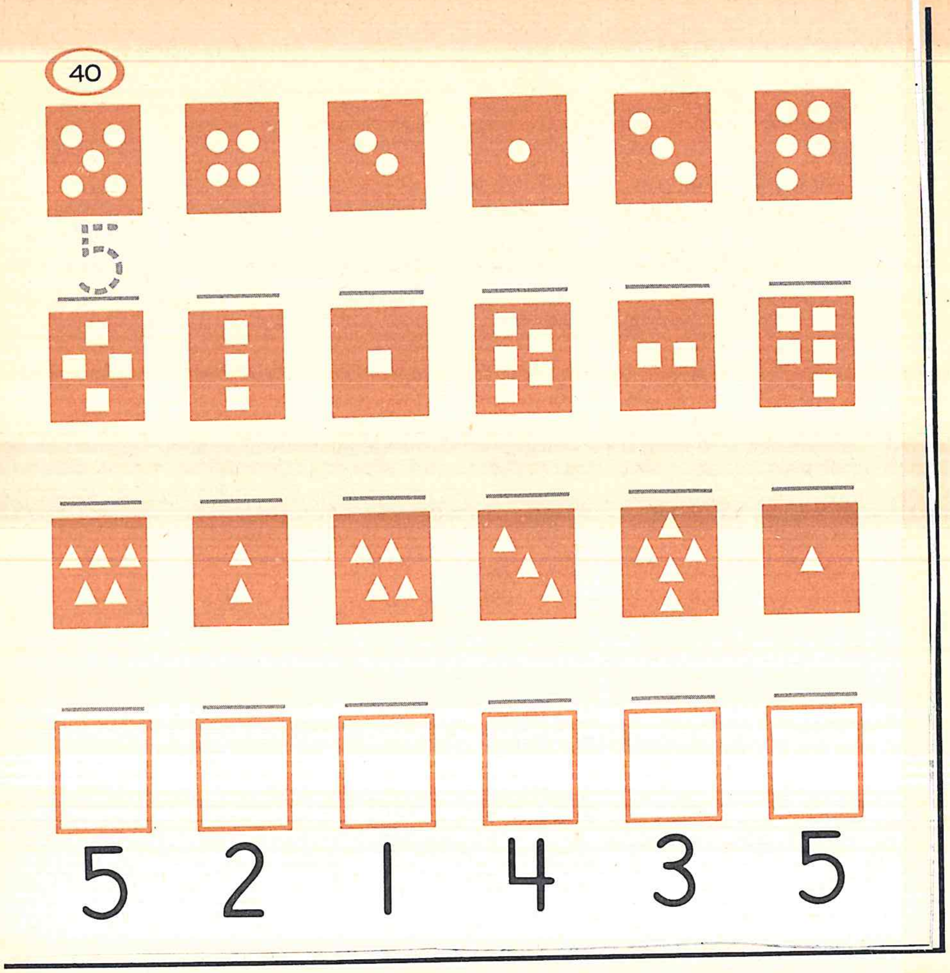
Demonstrate how to write the numeral 5 at the chalkboard. Make several 5's, saying "Down and around, lift and across" as you write each one.



Then have the children make several 5's on their desk top with their fingers.

Have the children complete the page by writing the 5's at the bottom.





40

Purpose

To develop facility in recognizing compact groups of objects without counting.

Materials

A set of counters for each pupil. A flannel board.

Developmental Activity

Put a set of 5 objects on the flannel board. Have the group arrange their sets of counters in the same pattern on their table or desk tops. **Who can make another 5-pattern?** Let individual pupils take turns at the flannel board showing how a new 5-pattern might be made. Have each pupil reorganize his counters to show the new 5-group. Repeat for the 4-group.

Procedure

Open your books to page 40.

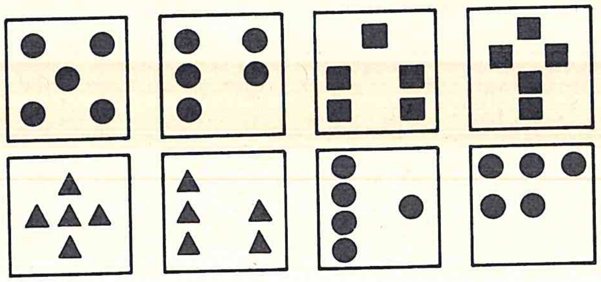
How many dots are in the first box? [5] **So a 5 has been written under the box. What numeral should go under the next box?**

[4] **Write 4 on the line. Can you write the numeral that tells how many under each box?**

In the last row draw a picture to show how many each numeral stands for.

Extended Activity

Make a set of Dot Flash cards and have the pupils play Dot Flash in pairs or in small groups. Sample patterns for 5 might include:



Instructions for Dot Flash are found on page 19.

Purpose

To develop the number sentence about 5 and to provide an opportunity for presenting verbal story problems.

Vocabulary

Square, circle, rectangle.

Materials

Appropriate books, pictures, study prints, films, or filmstrips.

Since this is the only page in the book that relates to farm life, and since many children have limited experiences with farms, it would be highly desirable to provide any of the following experiences before studying this page:

(a) Take a study trip to a farm or ranch.
(b) Show selected films of farm animals or activities relating to farm life.
(c) Show study prints of farm animals and activities.
(d) Read selected stories.
(e) Share animal books.

Do not overlook any personal experiences.

Procedure

Let us open our books to page 41.

How many of you have ever visited or lived on a farm or ranch? Take time to listen to the children's experiences.

There are many kinds of animals in our picture today. Let us name them. [horses, cows, chicks, pigs] **How many of you have ever helped feed the animals?**

How many chicks do you see? How do you see them? [4 beside the mother hen and 1 going away from her] **How many all together?** [5] **Who can say the number sentence?** [4 and 1 are 5.] **Who can write it?** [4 + 1 = 5] **Who can say and write it another way?** [1 and 4 are 5] [1 + 4 = 5]

Find the pigs. How many pigs are not eating? [3] **How many are eating at the trough?** [2] **How many all together?** [5] **Who can say the number sentence?** [3 and 2 are 5.] **Who can write it?** [3 + 2 = 5]

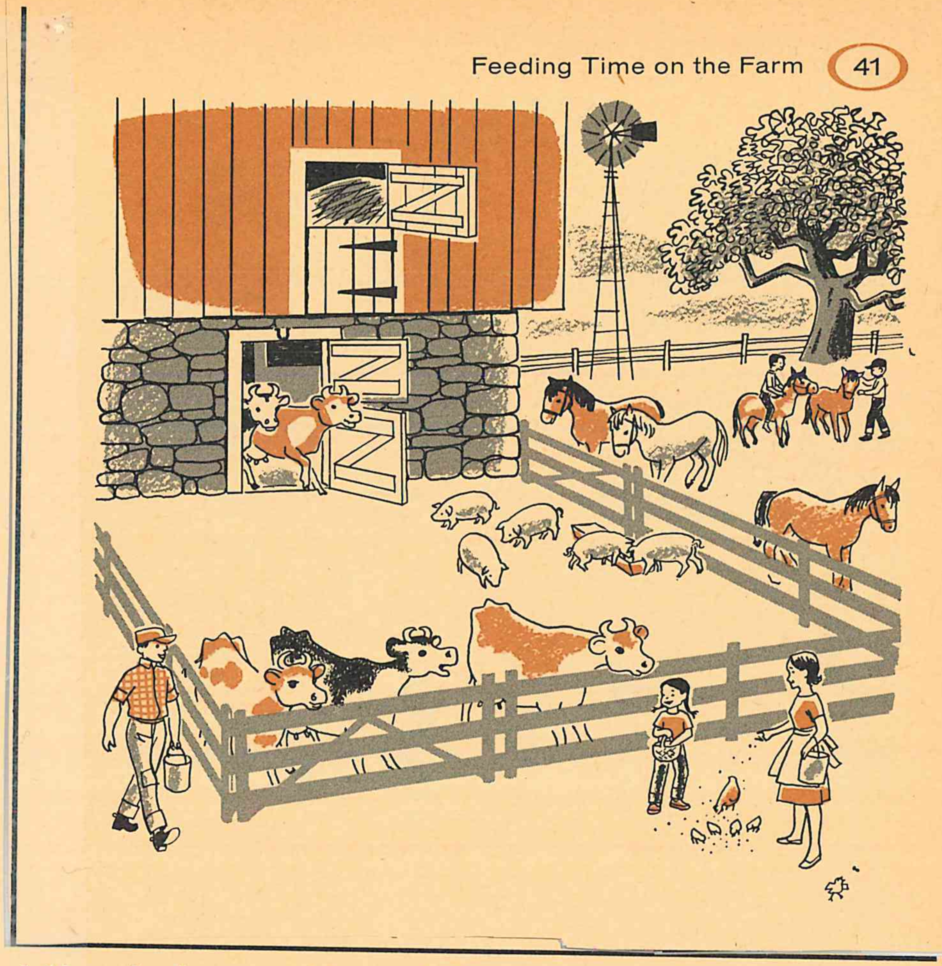
Who would like to make up a story about the cows? I'll begin. Three cows are out of the barn. . . . How many all together? [5] **Who can write it? Who can say it?** [3 and 2 are 5.]

Who would like to make up a story about the horses?

What shapes can you see in this picture?

Extended Activity

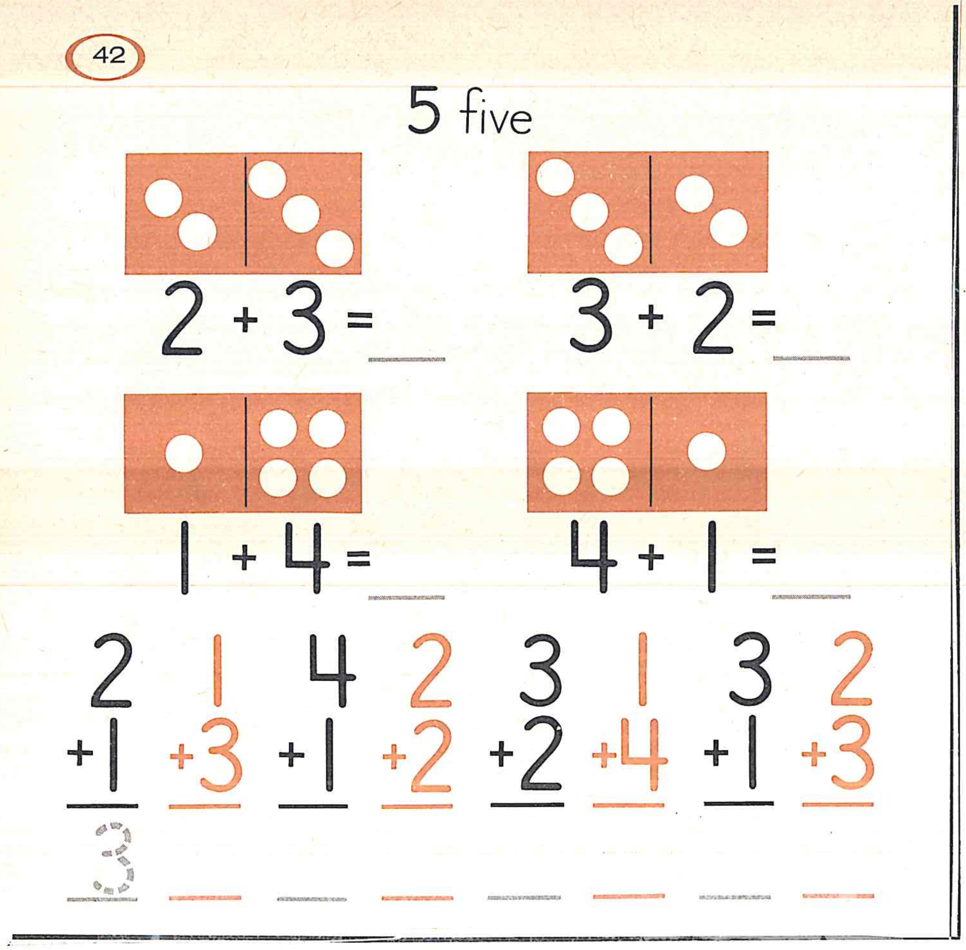
Call a child to the flannel board. Have him show all the number sentences that make 5. While he is doing this, have the other children do the same thing with their counters at their desks or tables.



Feeding Time on the Farm 41

Draw a picture of life on the farm showing five-ness.

Continue the page in the booklet showing five-ness. This was begun on page 37.



42

5 five

2 + 3 = ___ 3 + 2 = ___

1 + 4 = ___ 4 + 1 = ___

$\begin{array}{r}2\\+1\\\hline 3\end{array}$ $\begin{array}{r}1\\+3\\\hline\end{array}$ $\begin{array}{r}4\\+1\\\hline\end{array}$ $\begin{array}{r}2\\+2\\\hline\end{array}$ $\begin{array}{r}3\\+2\\\hline\end{array}$ $\begin{array}{r}1\\+4\\\hline\end{array}$ $\begin{array}{r}3\\+1\\\hline\end{array}$ $\begin{array}{r}2\\+3\\\hline\end{array}$

42

Purpose

To study and master the addition combinations in the 5-group. To have each pupil analyze the subgroup relationships within a group of 5 objects.

Materials

Individual counters.

Developmental Activity

Have each pupil put his counters in a row. Have the children see what counters can be used to show addition examples totaling 5.

1 + 4
2 + 3
3 + 2
4 + 1

Write the pairs on the chalkboard in such a way that the series relationship is brought out.
How are 1 + 4 and 4 + 1 the same? different?
How are 3 + 2 and 2 + 3 the same? different?

Then have the class make three subgroups out of the 5 counters—for example, 0   0 0   0 0 or 1 + 2 + 2. **What other groupings of three numbers can we discover in 5?**

1 + 3 + 1
1 + 1 + 3
3 + 1 + 1

2 + 1 + 2
2 + 2 + 1
1 + 2 + 2

If it appears appropriate, extend this development to sets of four numbers.

Procedure

Turn to page 42.

What is the numeral at the top? [5] **The number word?** [five] **This is a page of work with the 5-group.**

We are going to write the answer to each number sentence. Look at the first one. Let's read it together. Two and three are ______. [5] **Write a numeral 5 on the line.** Have the group do the first 2 rows.

Now look at the bottom of the page. Here is a new way to write addition. (vertical) Put several examples on the chalkboard:

$\begin{array}{r}3\\+1\\\hline\end{array}$ $\begin{array}{r}1\\+3\\\hline\end{array}$

Have several pupils go to the chalkboard and finish the examples.

Now work the set of addition examples at the bottom of the page. Work out each example with your counters to be sure your answer is correct.

Extended Activity

Give out sheets of paper folded into 4 parts. Have each pupil write one of the four addition combinations for 5 in each box. Then have him draw pictures in the box to illustrate the addition fact.

Do not tell the children the combinations. Have each child work out his own. Counters may help.

Encourage creativity in the illustrations.

Purpose

To review all the addition combinations in the 3-, 4-, and 5-groups.

Materials

A set of addition flash cards, individual counters.

Developmental Activity

This is a review session for small groups at a time. Seat the group in a semicircle facing the teacher. Quickly run through the flash cards. When a child gives a wrong answer, have him illustrate the combination on the chalkboard or with a set of counters at the table.

Procedure

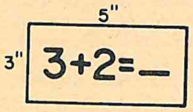
Let's open our books to page 43.

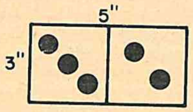
Look at each of the domino pictures and write the answer to the number sentence that goes with it.

In the bottom row make up three number sentences about 5 and draw the domino picture that goes with each.

Extended Activity

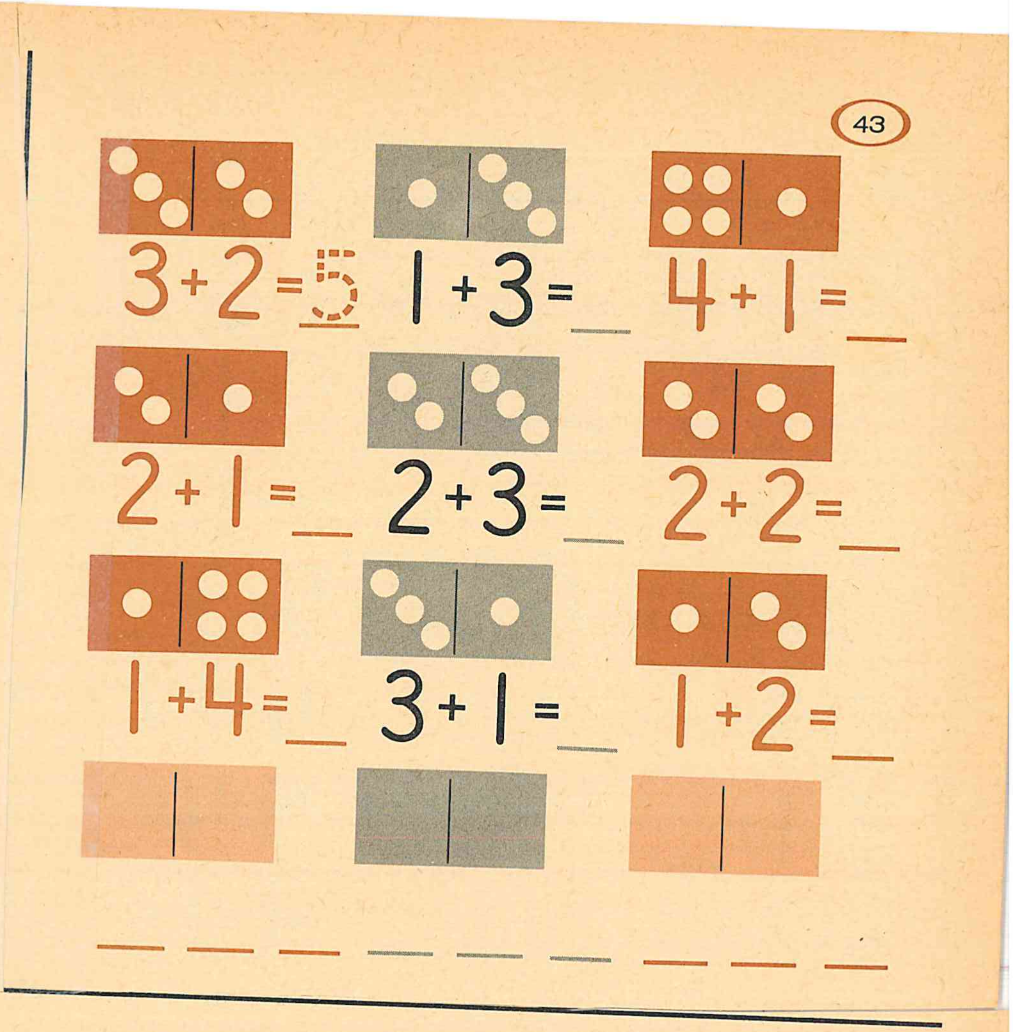
Cut tagboard into 3″ x 5″ pieces and have each child make a set of flash cards containing the addition combinations in the 3-, 4-, and 5-groups. Have the number sentence put on one side and the domino picture on the other.





This activity should be teacher directed. Guide lines should be put on the cards where the number sentences are to be written.

Have the children take their sets of flash cards home to show Dad and Mother how well they know these addition combinations.



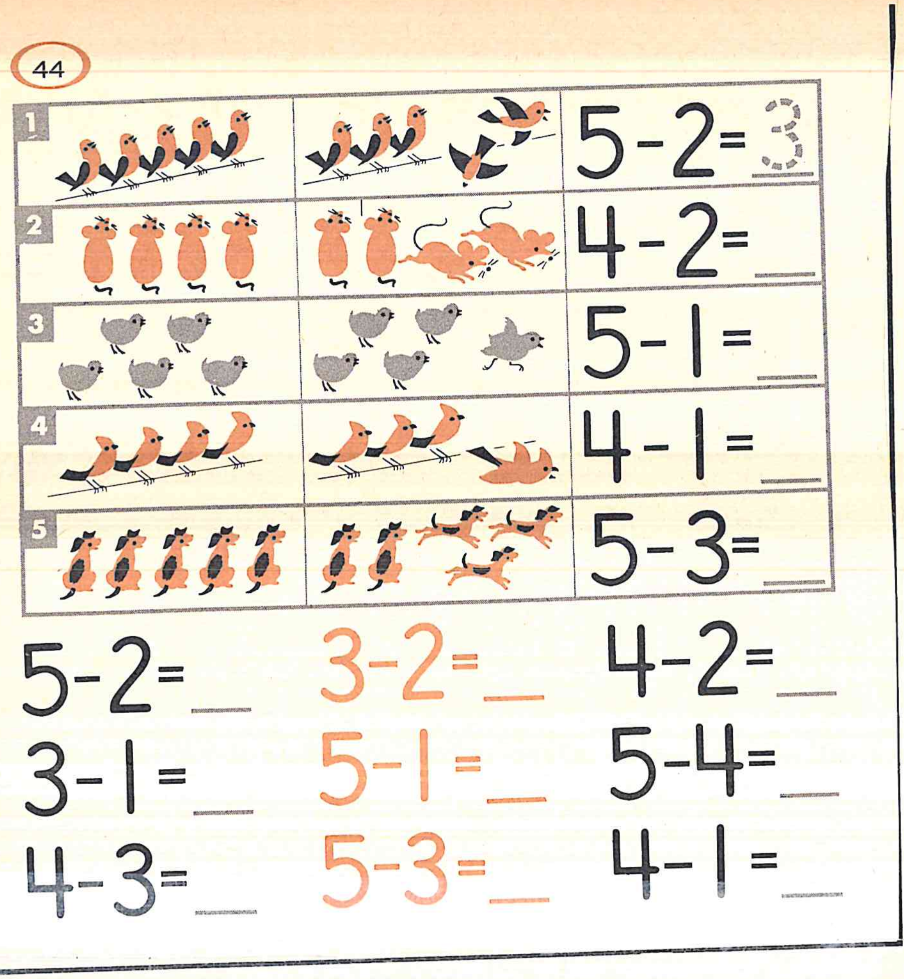
43

3+2=5 1+3=__ 4+1=__

2+1=__ 2+3=__ 2+2=__

1+4=__ 3+1=__ 1+2=__

__ __ __ __ __ __ __ __ __



44

1 5-2= 3

2 4-2= __

3 5-1= __

4 4-1= __

5 5-3= __

5-2= __ 3-2= __ 4-2= __

3-1= __ 5-1= __ 5-4= __

4-3= __ 5-3= __ 4-1= __

44

Purpose

To develop the subtraction combinations in the 5-group.

Vocabulary

Subtraction.

Materials

A set of counters for each pupil. A flannel board.

Developmental Activity

Have each pupil take out a set of 5 counters and put them in a row: 0 0 0 0 0. Put 5 objects on the flannel board or chalkboard. **Here are 5 ______. If I take away 1, how many are left?** [4] Repeat with 2, 3, and 4 objects.

Boys and girls, you remember that this is how we write the number sentence to show take away. Write 5 − 1 = 4 on the chalkboard. **Five take away 1 leaves 4.** Repeat this for each of the combinations. As you point to it, have the pupils read each element of the number sentence.

Procedure

Open your books to page 44.

This page is about subtraction. When we work take-away examples, we are doing subtraction.

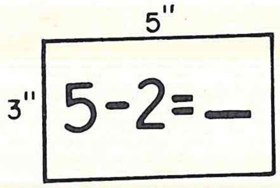
Look at the first picture story. How many birds are in the box? [5] **What happens in the next box?** [2 of them are flying away.] **With your hand cover the 2 birds flying away. How many are left?** [3] **The number sentence at the end of the first row tells the story. Who can read it?** [5 take away 2 leaves 3.] **Finish writing the 3.**

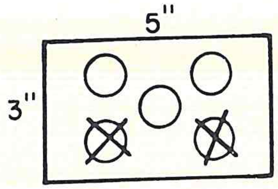
What do we see in the next row? [4 mice] **What happens?** [2 run away.] **With your hand cover the 2 mice running away. How many are left?** [2] **Who can read the number sentence?** Have several pupils read the sentence. **Now write the answer on the line.** Repeat this procedure for rows 3, 4, and 5.

Next have the group work the examples at the bottom of the page. First do them orally. Have the children check several of them by showing how to find the answer with counters. Then have the class work independently and write the correct answer for each example.

Extended Activity

Make a set of flash cards for the subtraction combinations. Put the combinations on one side and the picture story on the other side.





Purpose

To provide practice with the subtraction facts in 3, 4, and 5.

Materials

A set of counters for each pupil. A flannel board.

Developmental Activity

Put a set of 5 objects on the flannel board or chalkboard. Have each pupil put 5 counters in front of him.

Today we are going to see how many number sentences we can make by taking away from a 5-group. Point to it. **If we each take 1 of our counters away, how many are left?** [4] **Who can say the number sentence?** [5 take away 1 leaves 4.] **This is how we write it.** On the chalkboard put: 5 — 1 = 4. **Let's all read it together as I point.** Point to each element in the sentence as the class reads.

What other number sentences can we make with 5 and take away? Repeat the above procedure for 5 — 2, 5 — 3, 5 — 4. Then review 4 — 1, 4 — 2, 4 — 3, and 3 — 1, 3 — 2.

Procedure

Open your books to page 45.

Look at the first example on the left in the top row. The picture tells the story. Four dots are crossed off. That shows 4 are taken away. When we have 5 dots and take away 4 of them, how many are left? [1] **Put a 1 on the line.**

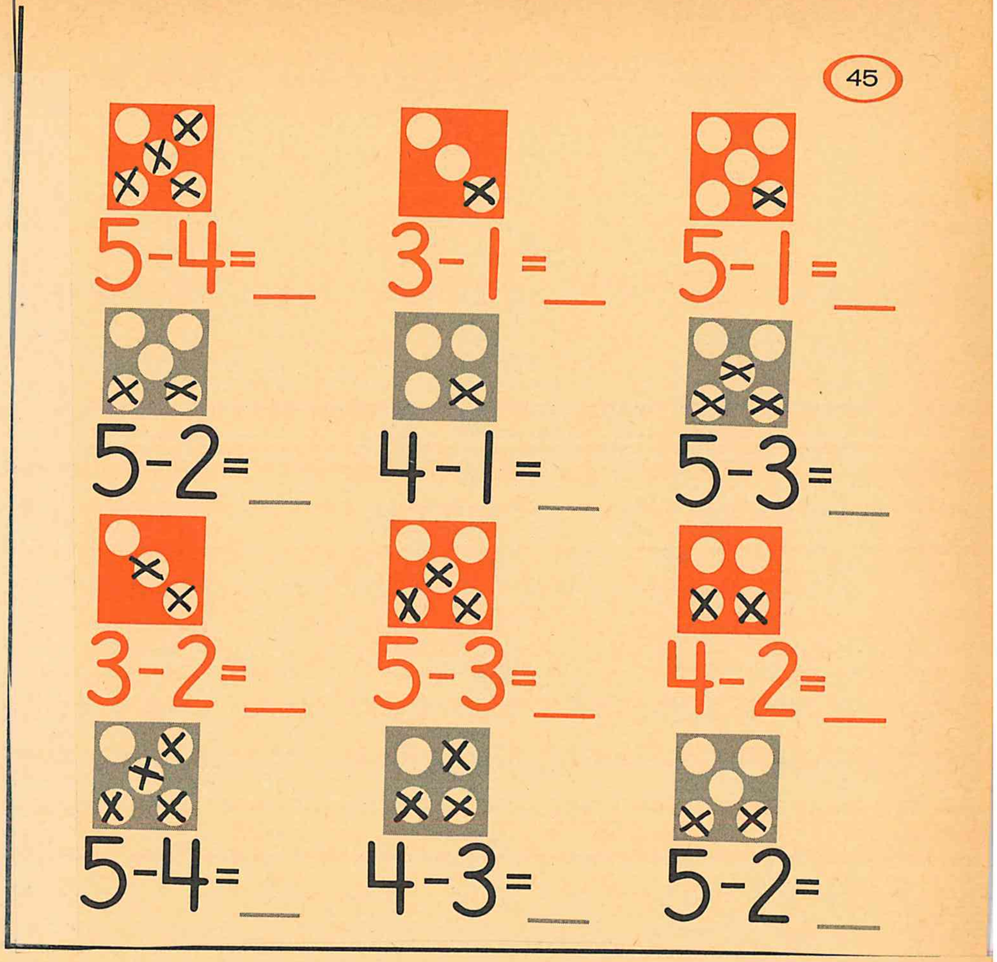
Now let's do the others. Can we get them all correct? Are we sitting up tall?

Circulate and give help as needed. Continue to have pupils use counters when they do not know the answer.

Extended Activity

Have the children make sets of Number Flash cards for the new facts: 5 — 1, 5 — 2, 5 — 3, 5 — 4.

Have the children take their Number Flash cards home to share with Mother and Dad.

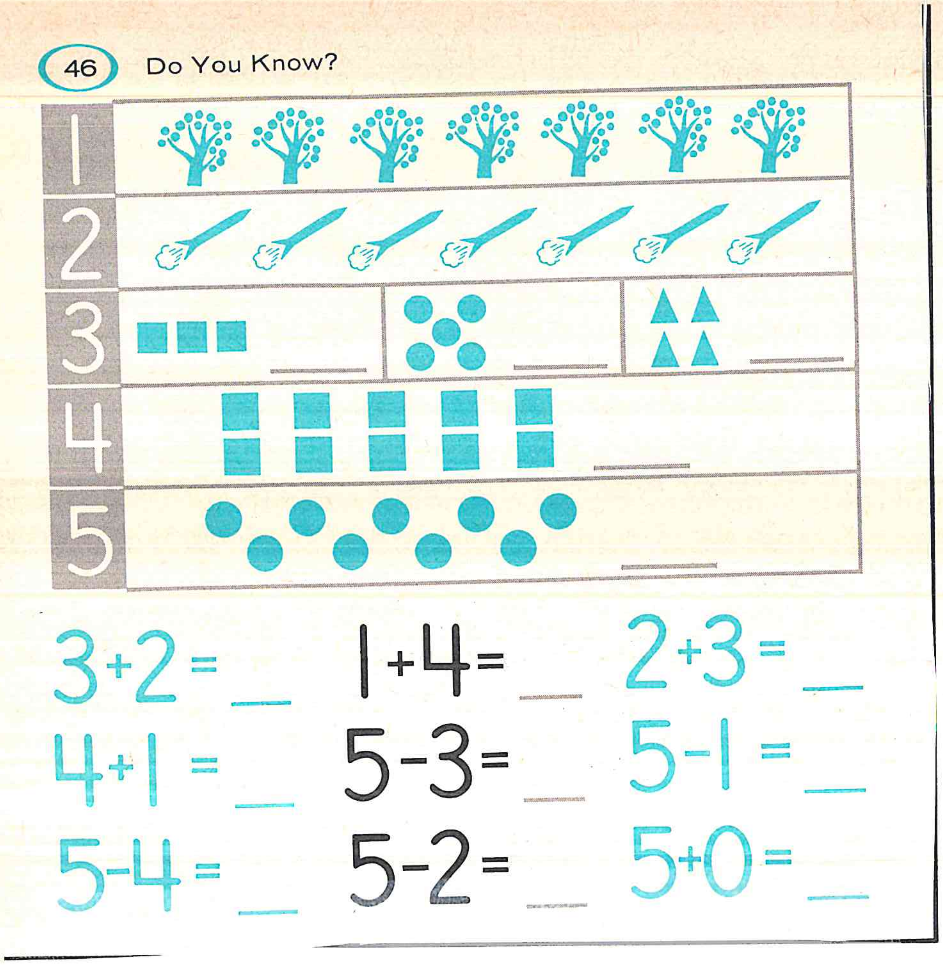


5-4=__ 3-1=__ 5-1=__

5-2=__ 4-1=__ 5-3=__

3-2=__ 5-3=__ 4-2=__

5-4=__ 4-3=__ 5-2=__



46 Do You Know?

$3+2=$ ___ $1+4=$ ___ $2+3=$ ___

$4+1=$ ___ $5-3=$ ___ $5-1=$ ___

$5-4=$ ___ $5-2=$ ___ $5+0=$ ___

Purpose

To test the readiness of the group to go on.

This test covers the following:

1. Series—Knowledge of fourth and fifth
2. Group—Recognition of 3, 4, 5
   Reproduction of 4 and 5
3. Addition facts in 5
4. Subtraction facts in 5

Procedure

Open your books to page 46. This is a review page to see how well we have learned about five.

Look at the number 1 row with the trees. Put your left forefinger on the 1. Like this: Turn your back to the group, holding your book with your right hand and pointing to the 1 with your left forefinger. **Draw a ring around the fifth tree.**

Look at the number 2 row with the rockets. Draw a ring around the fourth rocket.

Look at the row with the numeral 3 in front. On the line after each of the groups, write the numeral that tells how many are in each group.

Find the number 4 row. Draw a ring around 4 of the little squares. Then write the numeral 4 on the line.

Find the number 5 row. Draw a ring around 5 of the dots. Then write the numeral 5 on the line.

At the bottom of the page, do the addition and subtraction examples. Watch the signs. What do we do when we see the sign +? [add] **this sign —?** [subtract or take away]

Circulate, give help, and check on the work. **Are we sitting up tall?**

Extended Activity

Have the children take this page home and explain it to their parents.

Purpose

To identify pennies, nickels, dimes; to teach equivalents.

Vocabulary

Nickel, penny, dime, the same as, amount, money.

Materials

Real money or toy money—pennies, nickels, dimes. A box of crayons for each child.

Real coins are preferred. However, if toy money is used, there should be enough for one-third of the class.

The teacher should work with a small group at a time.

Developmental Activity

Ask the children to close their eyes. Give assorted coins to each child. Ask the children to open their eyes. **Everyone who has a penny hold it up. Each person who has a nickel show it. Show me all the dimes you have. Now pass your coins to your neighbor to your right.** (Give help if it is needed.)

The activity may be repeated. It is an opportunity for the teacher to check individual children's understanding of coins.

Procedure

Put your finger on the first penny in the row at the top of page 47. Now put a ring around all the pennies you see in that row. How many do you see? [5] **Let us read this sign** = (write = on the board) **as "make." Five pennies make how many nickels?** [5 pennies make 1 nickel.] **We say 5 pennies have the same value as 1 nickel or 5 pennies are worth the same as 1 nickel.**

Now put your finger on the first nickel in the next row. How many nickels do you see in this row? [2] **Put an X on each.**

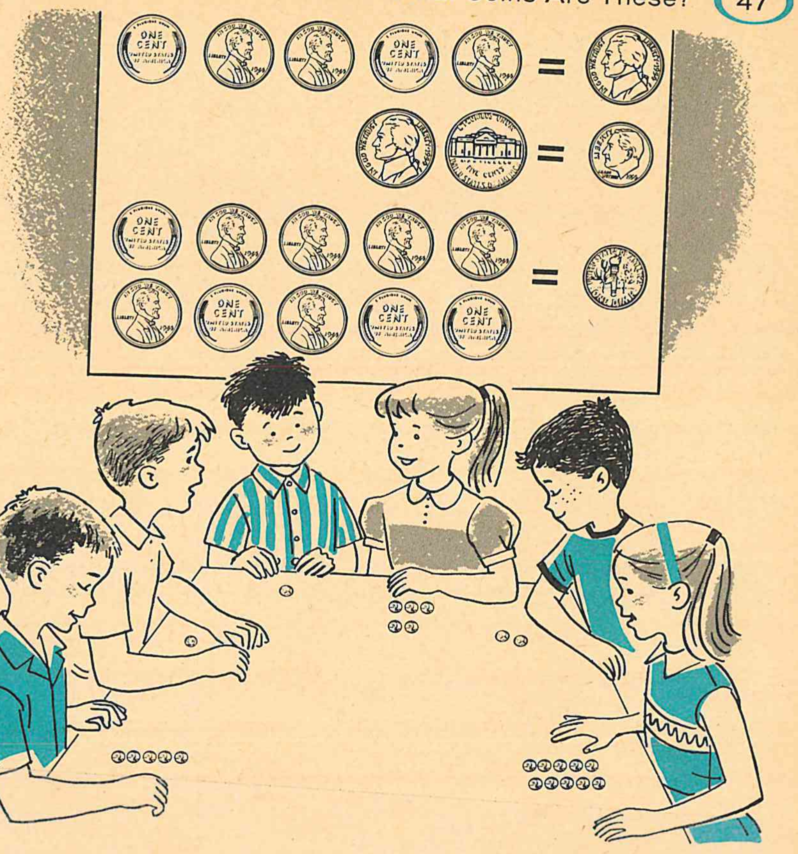
Draw on the chalkboard:

5¢ 5¢ = 10¢

Can anyone read this? [2 nickels make 1 dime.] **This means that if you had 2 nickels and I had 1 dime we would both have the same amount of money.**

Now look at the 2 rows of pennies. There is something else besides 2 nickels that has the same value as 1 dime. What is it? [10 pennies] **How many pennies do you see?** [10] **We say what?** [10 pennies make 1 dime.] Give one child 10 pennies. Give another a dime. **Do ________ and ________ each have the same amount of money?** [yes] **Ten pennies have the same value as ________.** [1 dime]

What Coins Are These? 47



Now let us look at the children in the picture at the bottom of the page. This is a Seek-and-Find game. Crayons ready.

Put your red crayon on the boy with 1 dime. Put an X on him. Put your red crayon on the girl with 10 pennies. Put a ring around her. Ten pennies have the same value as what? [1 dime]

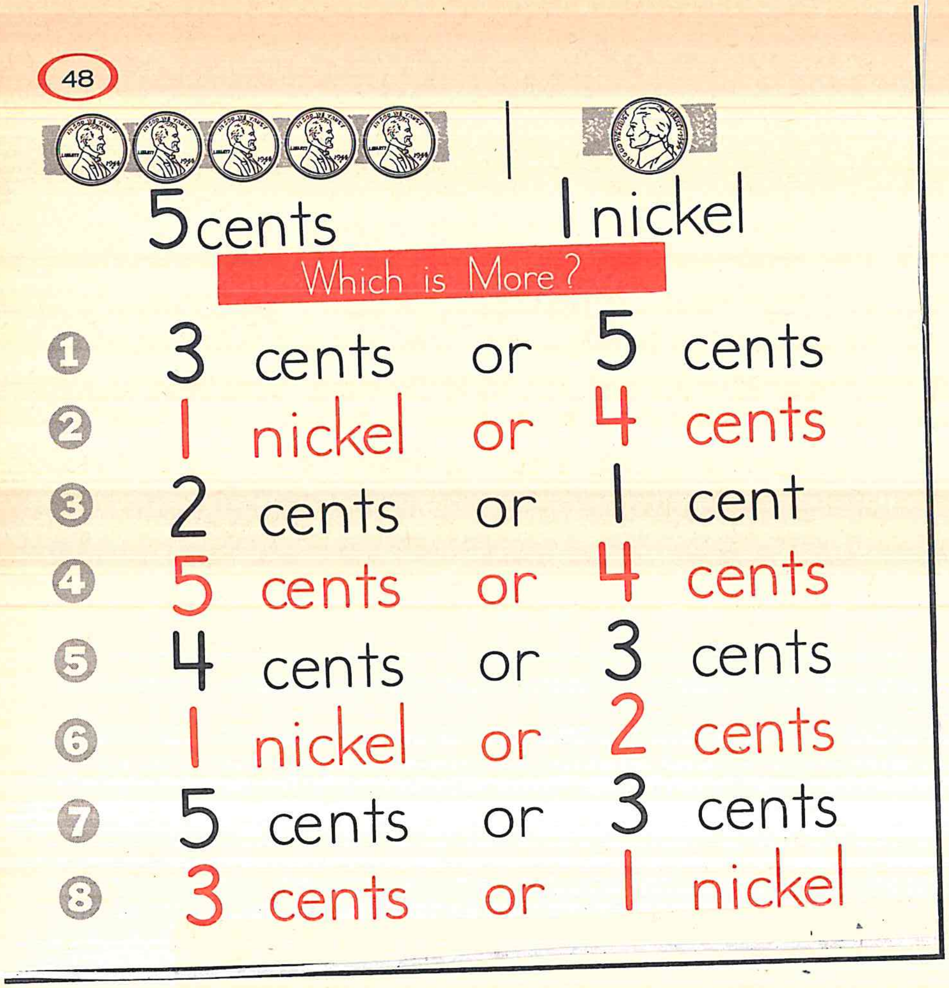
Put your green crayon on the boy with 2 nickels. Put an X on him. Two nickels have the same value as what? [1 dime, 10 pennies]

Put your green crayon on the boy with 1 nickel. Draw a ring around him.

Put your blue crayon on the girl with 5 pennies. Mark her with an X. Do 1 nickel and 5 pennies have the same value? [yes] **Put your blue crayon on the boy with 5 pennies. Draw a ring around him. Are his pennies arranged in the same way as the other 5 pennies?** [no]

Extended Activity

After you have worked in this manner with the class divided into three or four groups, you will know which children are ready for the next step and which ones need further practice. You should keep a record of the children's achievements.



48

5 cents | 1 nickel

Which is More?

① 3 cents or 5 cents
② 1 nickel or 4 cents
③ 2 cents or 1 cent
④ 5 cents or 4 cents
⑤ 4 cents or 3 cents
⑥ 1 nickel or 2 cents
⑦ 5 cents or 3 cents
⑧ 3 cents or 1 nickel

48

Purpose

To teach an understanding of the relative value of pennies and a nickel, to stress the understanding of *which is more*.

Vocabulary

Cent, cents, penny, nickel, which is more, worth.

Materials

A nickel and 9 pennies for each child at the table.

Developmental Activity

This lesson will be readily understood if the children have pennies and a nickel in front of them.

Review money equivalents as far as they have been taught. **Does anyone know another name for a penny?** [cent] Write both words on the chalkboard.

Play a game with the children seated in a group at a table. **Show me which is more, 3¢ or 4¢, etc.**

When most children show understanding, introduce the page.

Procedure

Open your books to page 48.

Look at the top of the page on the left-hand side. How many pennies do you see? [5] **Five pennies can also be written like this:** 5 cents. (Write it on the chalkboard.)

Find "5 cents" on the page. Draw a line under it.

Now look at the upper right-hand corner. What do you see? [1 nickel] **We write it like this:** 1 nickel. (Write it on the chalkboard.)

Draw a line under "1 nickel" in your book.

The writing below says, "Which is more?" Can anyone tell me which is more, 5 pennies or 1 nickel? [Neither is more. 5 pennies have the same value as 1 nickel.] **When it comes to buying and selling, we say 5 pennies and 1 nickel are worth the same amount of money.**

Find the first row. Put your pencil on the numeral 1 with a circle around it.

First let us read the words together. "Which is more, 3 cents or 5 cents?" Show me with your coins. Put a ring around the numeral and the word that show which is more. [5 cents]

Now point your pencil to the numeral 2 with a circle around it. Show this if necessary. **Which is more, 1 nickel or 4 cents? Show me with your coins. Put a ring around it.** [1 nickel] Check to see if the children understand.

Now point to the numeral 3. Let's read together. "Which is more, 2 cents or 1 cent?" Show me with your coins. Put a ring around it. [2 cents] Complete the page in a similar manner.

Extended Activity

Make a chart showing money equivalents. Use cardboard coins made large enough to hold and manipulate. Be certain that the children understand that the large penny and nickel are cardboard, and not real.

This chart should be planned ahead of time and should continue to be used as a developmental chart as further work with coins is done.

By making two movable signs, "Which Is More?," and "Which Is Less?," you can give the chart a dual purpose.

Purpose

To review the equivalence of 5 pennies and 1 nickel. To teach the meaning of change as *how much money is left*. To teach the ¢ symbol.

Vocabulary

Nickel, penny, pennies, cent, cents, change meaning "how much money is left," cost, buy and sell.

Materials

Large tags for marking prices; real money—a nickel and 5 pennies for each child; assorted toys.

Developmental Activity

Help the children recall that a nickel and 5 pennies have the same value.

A firsthand experience in actually buying a few objects at the five-and-ten might be better than a teacher-telling approach.

Make a display of miniature toys, or ask the children to bring some small toys from home. Agree on prices (nothing above 5¢) and mark the tags. Teach the ¢ symbol for cents. Place the articles in the center of a table.

Work in small groups. Give each child in the group 5 pennies. The teacher may serve as storekeeper. Ask each child to select a toy and read the price for it. Have him give the teacher the correct number of pennies for the toy. Then have him tell how many pennies or cents he has left.

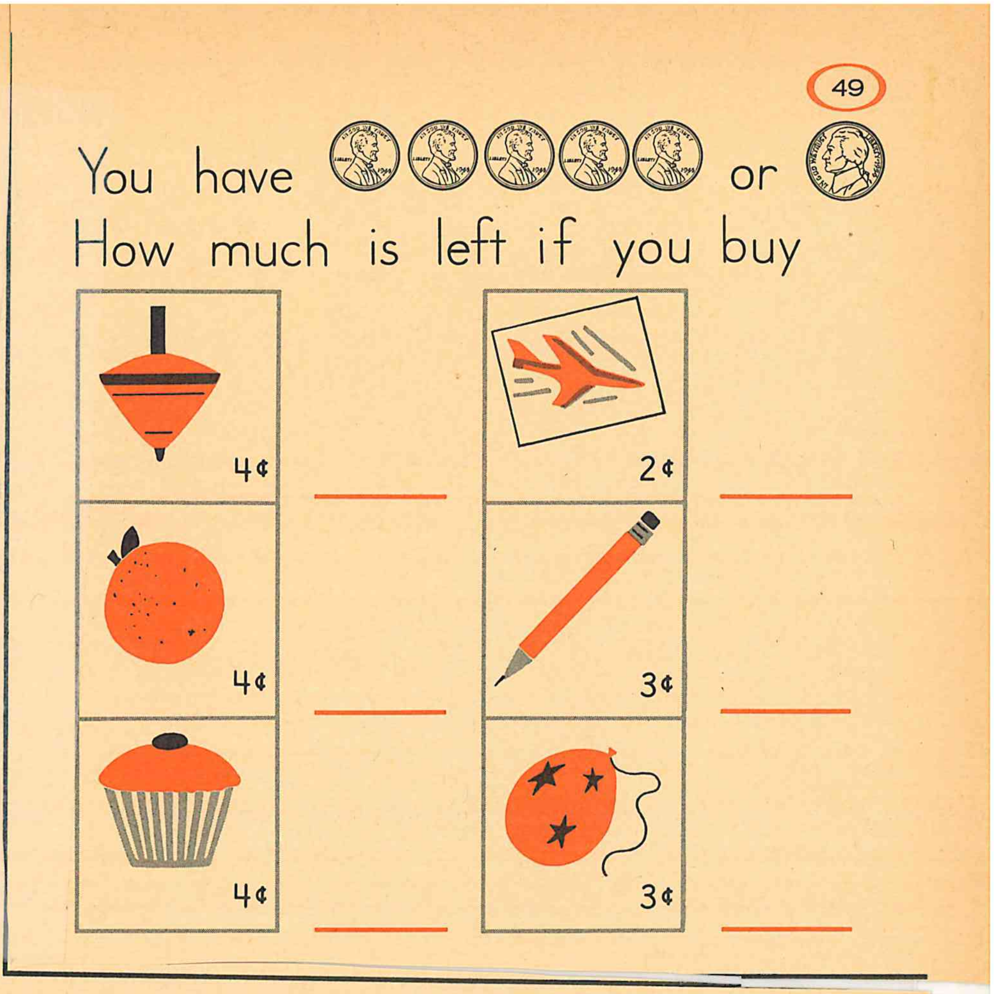
Then give each child a nickel. The teacher will take the pennies. This time ask the child to select his purchase, pay for it with the nickel, and tell how many pennies he will get back. Give him the pennies. **This is your change.** When most children understand this, introduce page 49.

Procedure

Develop the page orally. Read the first line with the children. **You have how many pennies or how many nickels?** [5 pennies or 1 nickel] Read the next line to the children.

Now point to the first box in the top row. What is in the box? [a top] **How much does it cost?** [4¢] **If you buy it, how much will you have left from 5 cents or 1 nickel?** [1¢] **What do you think you will write on the line next to the box?** [1¢] **Do not write it now. I will tell you when to write it.**

What is in the next box across the top row? [airplane card] **How much does it cost?** [2¢] **If you buy it, how much will be left from 5 cents or 1 nickel?** [3¢] **What do you think you should write on the line next to the box?** [3¢] **Do not write it now. I will tell you when to write it.**



You have or

How much is left if you buy

What is in the box under the top? [orange] **What do you think you should write on the line next to the box?** [1¢] **Do it later.**

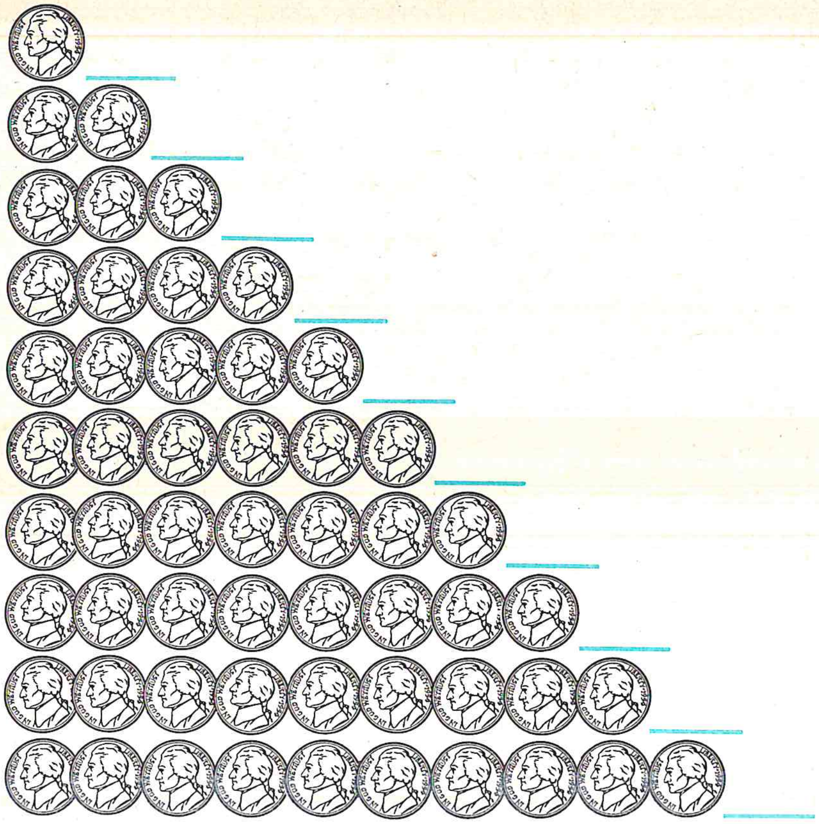
Continue this procedure for the entire page. Have the children do the page independently.

Extended Activity

Place toy objects and toy money on a shelf or ledge. Encourage the children to "buy and sell" during free-choice time.

Similar worksheets may be developed to test the children's skill in making change from a nickel.

50 Counting by 5's



50

Purpose

To use nickels to learn to count by 5's.

Vocabulary

Nickel or five cents, five, ten, fifteen, twenty, twenty-five, thirty, thirty-five, forty, forty-five, fifty.

Materials

Real nickels. Using the chart on page 50 of the children's book as a model, prepare a larger chart for counting with nickels to 100.

Developmental Activity

Work in small groups.

Counting with nickels is a natural way of counting by 5's. Ask the children if there is something interesting about counting by 5's that is easy to remember. Someone may know that every other number ends in zero and the numbers in between end in five.

Count in groups. Use real nickels. Then ask individual children to count to 50. Give plenty of time for oral work.

Procedure

Now that we have been working on counting by 5's with nickels, let us see what our book has to suggest. Open your books to page 50.

Put your pencil on the first nickel at the top of the page. If we have 1 nickel, we have how many cents? [5] **There is a line for us to write this on. Point to it. Since we already know how to make the symbol for cents, this should be easy to write. Take your pencils and write 5¢.** Check to see if all were successful. **Another name for a nickel is —— cents.** [5]

Now look at the next row. How many nickels have been added? [1] **Two nickels are how much?** [10¢] **Write that on the line next to the 2 nickels.**

Now let us look at the third row. How many nickels have been added? [1] **Let us start from the beginning of the row and count: 5–10–15. Who knows what to write?** [15¢]

How many think they can do the next row alone? Give help only as needed.

Who will count the next row for us? [5–10–15–20–25, 25¢] **Write it.** [25¢]

Continue in this way until the page has been completed.

Extended Activity

Have the children count by 5's, using other related items, such as:

- Days of the school week.
- Fingers and toes—fingers on each hand; on both hands; toes on each foot; on both feet; all fingers and toes.
- Objects placed around the room in groups of 5.
- The children themselves.
- Counters on the flannel board.
- The hundred chart.
- The large nickel chart (see Materials).

Purpose

To demonstrate that money has value. To review the ¢ symbol. To develop further recognition of coins.

Vocabulary

Nickel, dime, cent, cents, money, pennies, more, less, how much.

Materials

"Surprise box" of coins—pennies, nickels, and dimes. Real coins, pieces of scratch paper, manuscript paper.

Developmental Activity

You might show the class a plastic purse revealing nickels, pennies, and dimes. Or you might use a "surprise box" and let the children feel and find coins. Have children try to identify the coins before looking at them.

To ascertain the knowledge children have about the uses of money, engage in a general discussion. List on the chalkboard the various things their families use money to purchase. Be alert to the suggested uses of money for meeting recreational needs.

Procedure

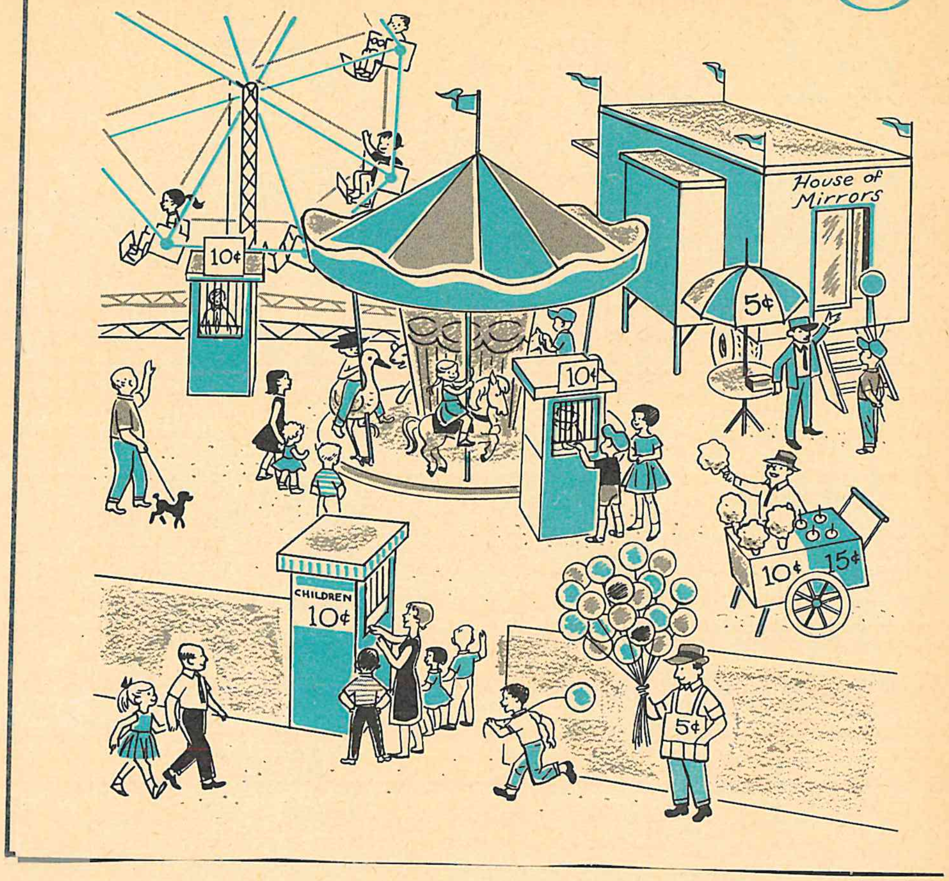
Open your books to page 51. Isn't this an exciting picture?

How many of you have been to a fair or an amusement park? Tell us about it.

Have you ever been on a merry-go-round? What animal did you ride? Let us look at the merry-go-round in the picture. How many children are riding on it? How many are waiting for a turn? Can you find out how much it costs to ride the merry-go-round? Who can see the sign that tells? Yes, you buy a ticket for ten cents. Let's all write 10¢ in the air. I will give each of you a piece of paper. Write 10¢ on the first line.

Do you see the big wheel? What is it called? [Ferris wheel] **Find the place where you buy tickets for the Ferris wheel. How much does it cost to ride? Would someone like to write 10¢ on the chalkboard? Shall we write it on the paper? Be sure to include the cent sign.**

Can you find the House of Mirrors? What is in a house of mirrors? Are the mirrors like those in your home? Find the place where you can buy tickets to go into the mirror house. How much would you pay? [5¢] **Is 5¢ more or less than 10¢? Put a ring around the 5¢. Write 5¢ on your paper.**



Now I am looking at something you almost always see at fairs. It is good to eat. It is fluffy and usually colored pink. What is it? [cotton candy] **To buy some cotton candy, how much would you have to spend?** [10¢] **Put a ring around the 10¢ on the cart. Write 10¢.**

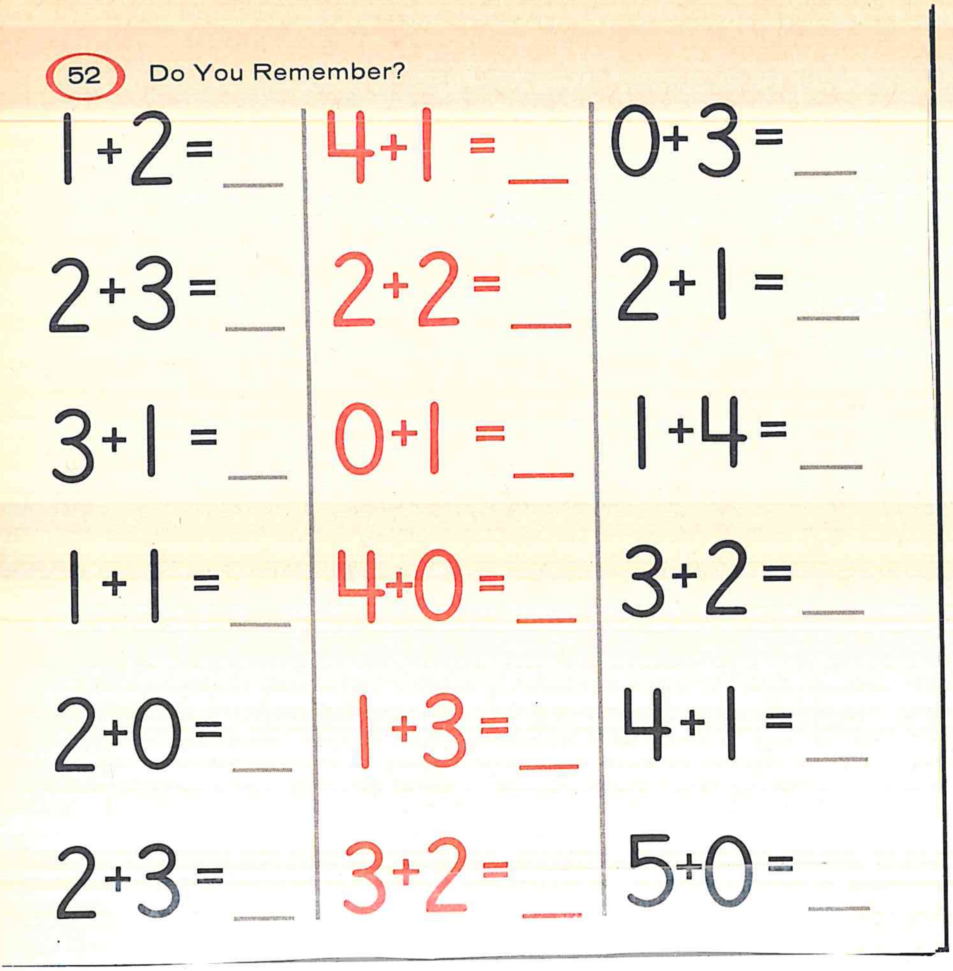
What else is the candy man selling? [candy apple, apples on a stick] **How much would be needed to buy one?** [15¢] **Put an X on the 15¢. Read it. Write 15¢. What coins could you use to make 15¢?**

How much does a balloon cost? [5¢] **How do you know? Put a ring around the 5¢. Write 5¢ on your paper.**

It's fun to talk about a fair. It's more fun to really go to one.

Extended Activity

Draw the following on the chalkboard or a worksheet: merry-go-round, balloon, cotton candy, mirror house, Ferris wheel, candy apples. Ask the children to draw these and to write the cost next to each.



52 Do You Remember?

1 + 2 = ____
2 + 3 = ____
3 + 1 = ____
1 + 1 = ____
2 + 0 = ____
2 + 3 = ____

4 + 1 = ____
2 + 2 = ____
0 + 1 = ____
4 + 0 = ____
1 + 3 = ____
3 + 2 = ____

0 + 3 = ____
2 + 1 = ____
1 + 4 = ____
3 + 2 = ____
4 + 1 = ____
5 + 0 = ____

52

Purpose

To provide practice with the addition facts in 3, 4, and 5.

Materials

Individual counters.

Developmental Activity

Write on the chalkboard. 1 + 2 = ____ 2 + 3 = ____ 3 + 0 = ____ 4 + 1 = ____

Have individual children suggest the answers for each of the above. **Is there another way we can write the first sentence?** [1 + 4 = 5 or 5 = 1 + 4] If both solutions are not given, suggest the missing one to the group. Repeat the procedure for 1 + 2, 2 + 3, and 3 + 0.

Procedure

Open your books to page 52. Quickly have the pupils take turns giving the answers to the combinations. If mistakes are made, have the pupils show the combination with their counters.

Now let's write the answers. Make good numerals. Are we sitting up tall?

Extended Activity

Suggest that the pupils collect a set of counters (buttons, beans, etc.) at home to show their parents how they find answers for number sentences.

In class groups the pupils could demonstrate how they might share this page with their parents.

This activity will give the pupils extra practice and will also interpret good teaching procedures to parents.

Purpose

To provide practice with the subtraction facts in 3, 4, and 5.

Materials

Individual counters.

Developmental Activity

Write the numeral 5 on the chalkboard. **What subtraction facts can we make with 5?** [5 — 1, 5 — 2, 5 — 3, 5 — 4] Have several different pupils take turns writing the number sentences on the chalkboard. Repeat this procedure for 4 and 3.

Procedure

Open your books to page 53.

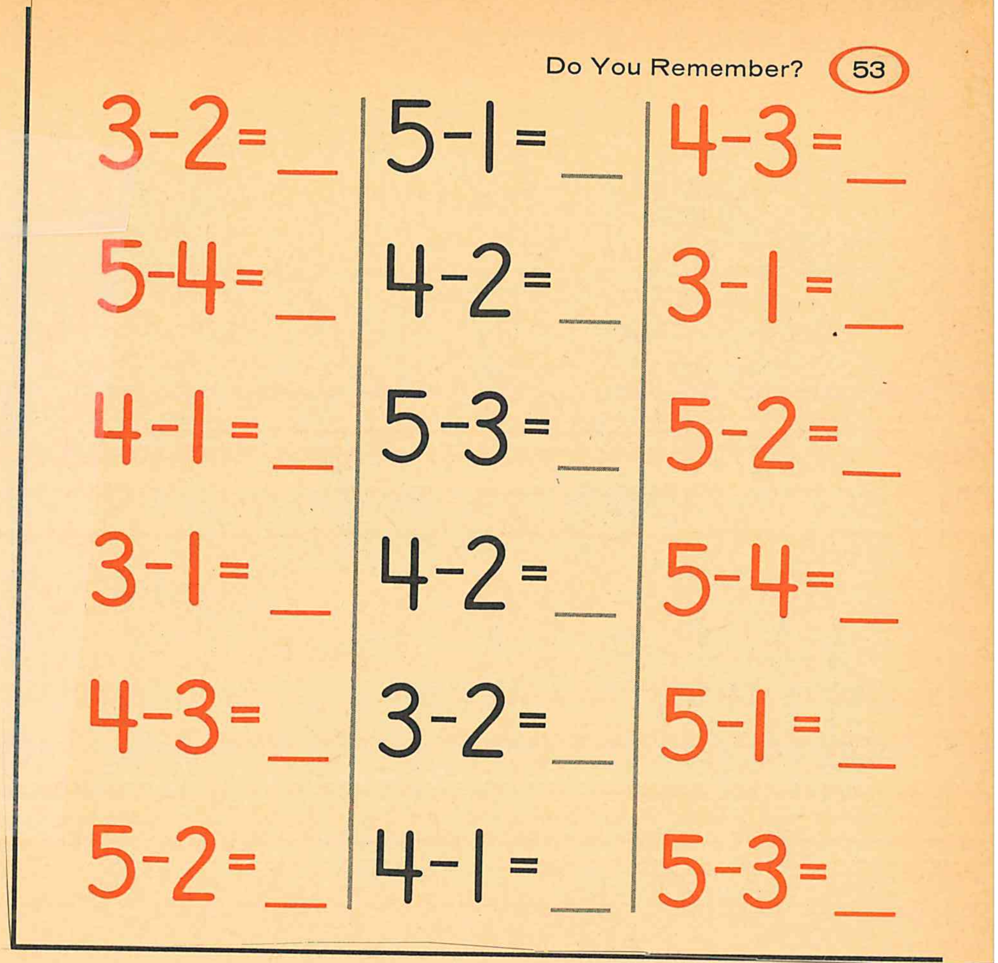
Quickly have the pupils take turns giving the answers to the combinations. If mistakes are made, have the pupils show the combinations with their counters.

Now let's write the answers. Make good numerals. Are we sitting up tall?

Extended Activity

Suggest that the pupils collect a set of counters (buttons, beans, etc.) at home to show their parents how they find the answers for number sentences.

In class groups the pupils could demonstrate how they might share this page with their parents.



3-2= _

5-4= _

4-1= _

3-1= _

4-3= _

5-2= _

5-1= _

4-2= _

5-3= _

4-2= _

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4-1= _

4-3= _

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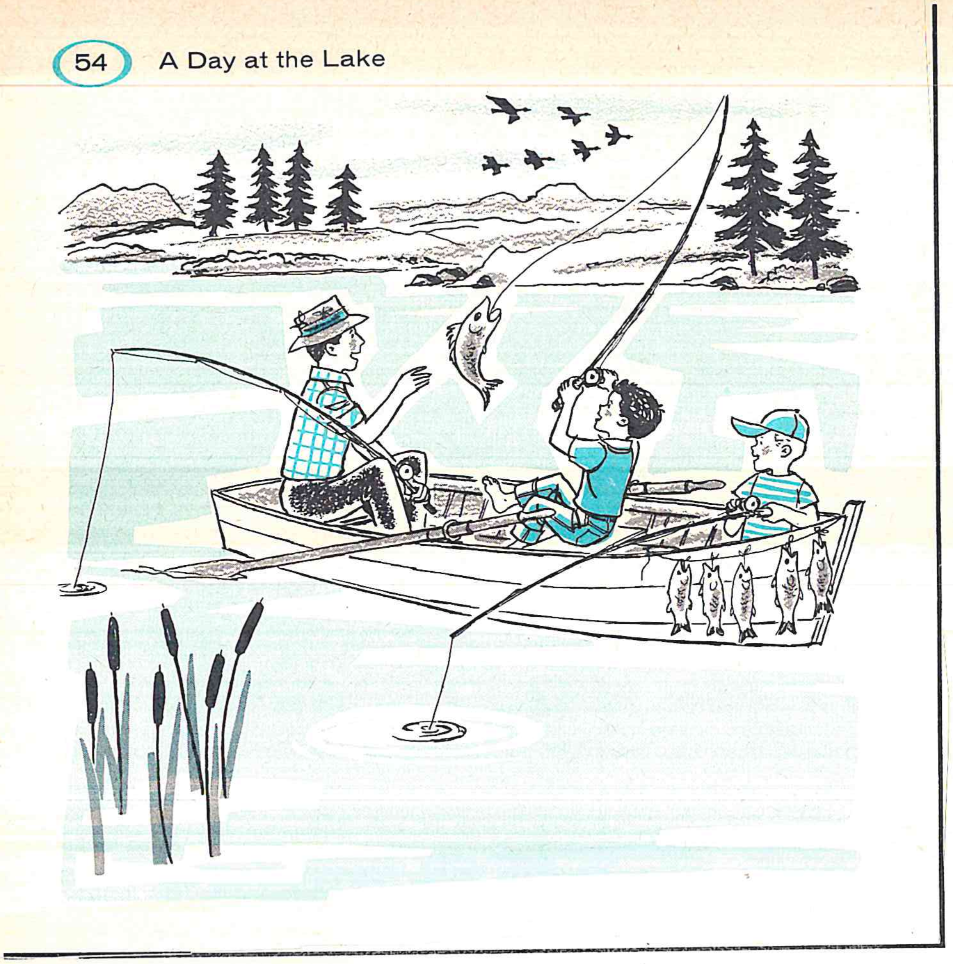
5-4= _

5-1= _

5-3= _


54 A Day at the Lake

54

Purpose

To introduce the concept of "six-ness."

Vocabulary

Middle, first, long, longest, shortest, tall, taller, tallest, close to, and near.

Materials

Arrange objects suitable for seeing six-ness around the room: Paper 24″ x 36″, magazine pictures, paper 12″ x 18″. Develop flannel board figures for the story to use in its presentation.

Developmental Activity

Read the story, "A Day at the Lake," on page iv to the children. If figures for the flannel board are accessible, use them in developing the story. If they are not available, discuss the picture. Encourage the children to talk about their own fishing experiences. Guide the discussion to develop use of arithmetic language.

Procedure

Open your books to page 54. Who do you think has just caught the longest fish of all? Draw a line from Dean's fish to the fish fastened to the boat.

How can you tell that each member of the family will have a fish for supper?

Draw a ring around the 4 trees that are close together. Are the other trees near or far from the shore? [near] **Can you tell me a number sentence about the trees?** [4 and 2 are 6.]

What do you see flying in the sky? [birds, geese] **Show me with your hands what shape a flock of geese make when they fly. We say they fly in a V-shape. Draw a ring around all the geese. How many are there?** [6]

What is growing in the water? [cattails] **How do you see the cattails?** [3 and 3 or 2, 2, and 2] **What shape are they?**

Who is at the front of the boat? [Gordon] **Who is at the back of the boat?** [Father] **Who is in the middle?** [Dean] **How many people are fishing?** [3] **Do you remember how many are left on shore?** [3] **How many people are there all together?** [6]

Have the children find objects previously placed in different locations about the room to show various groupings of 6.

Extended Activity

Continue work on the individual booklets. Ask the children to paste 6 pictures from magazines on the page or to draw 6 objects.

Group work may continue on class charts. The teacher will fold large sheets of paper 24″ x 36″ into squares 12″ x 12″. The children will draw 6 objects in each square.

Encourage the children to illustrate their own versions of "A Day at the Lake," showing six-ness. These may be taken home and shared with parents.

Purpose

To develop the concept of six-ness. To identify six as a group in many ways. To develop the structure of counting numbers by seeing that 6 is 1 more than 5, 5 is 1 more than 4, etc., also, that 5 is 1 less than 6, 4 is 1 less than 5, etc.

Vocabulary

Cent, penny, more than, less than, circle, square.

Developmental Activity

This lesson might start by having the pupils find many 6-groups in the room. (Sets of books, a row of chairs, flowers in a vase, children lined up, etc.) Lead the discussion to include finding subgroups in the 6's—for example, 3 red books and 3 blue books.

Seeing *structure* in 6 is a key part of this lesson.

Procedure

Let us turn to page 55 in our books.

Look at the large numeral in the middle of the page. It is the numeral ______. Let the children answer.

Have the pupils identify and discuss the things on the page.

6 pennies (cents)	**What kind of 6-pattern do the pennies make?**
6 squares	**What kind of 6-pattern do the squares make?**
6 circles	**What kind of 6-pattern do the circles make?**
6 stars	**What kind of 6-pattern do the stars make?**

Who can find the number word six? Frame it with your hands. Say it together—six.

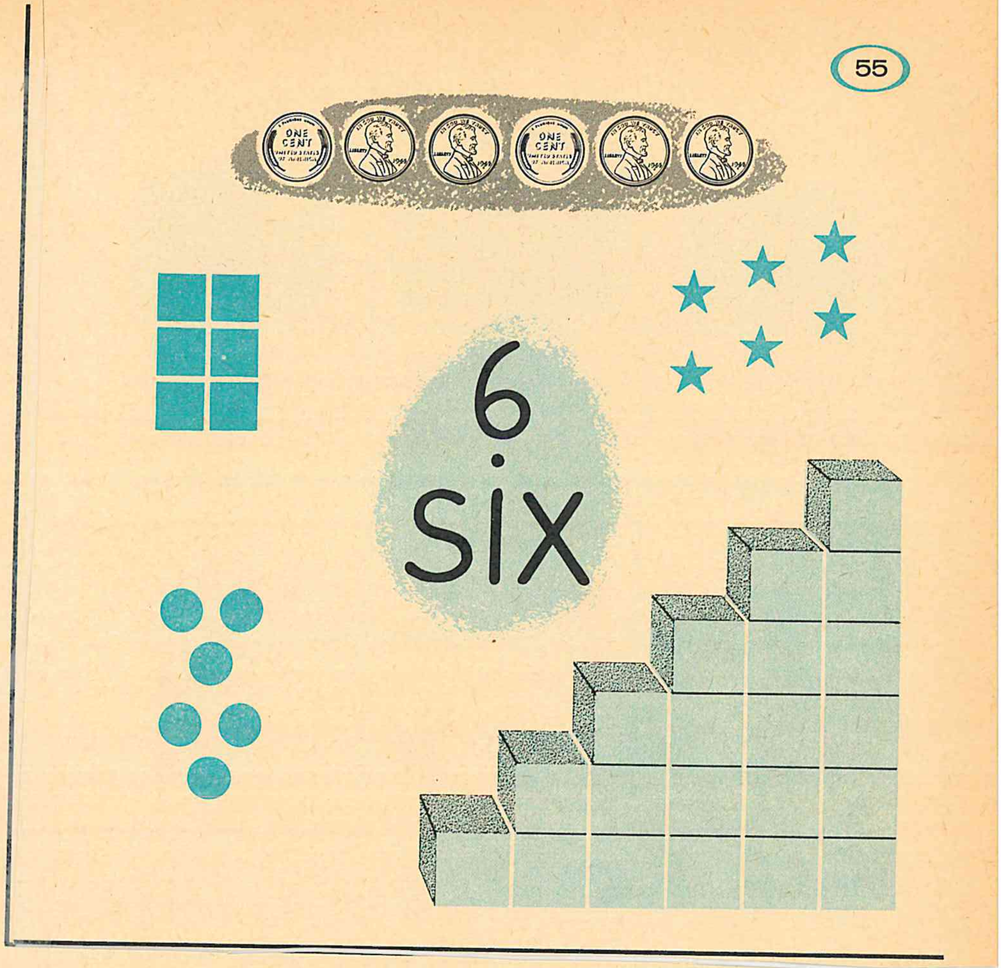
Now look at the blocks in the lower right corner. Point to them. How many blocks are in the tallest stack? [6] **Six is how many more than 5?** [1] **Five is how many more than 4?** [1] **Four is how many more than 3?** [1] **Three is how many more than 2?** [1] **Two is how many more than 1?** [1] **Each number is how many more than the one before it?** [1]

Five is how many less than 6? [1] **Four is how many less than 5?** [1] **Three is how many less than 4?** [1] **Two is how many less than 3?** [1] **One is how many less than 2?** [1] **Each number is how many less than the one before it?** [1]

Have the pupils take out a set of counters and make number stairs up to 6, showing that the next higher number is always 1 more and that the next lower number is always 1 less.

Extended Activity

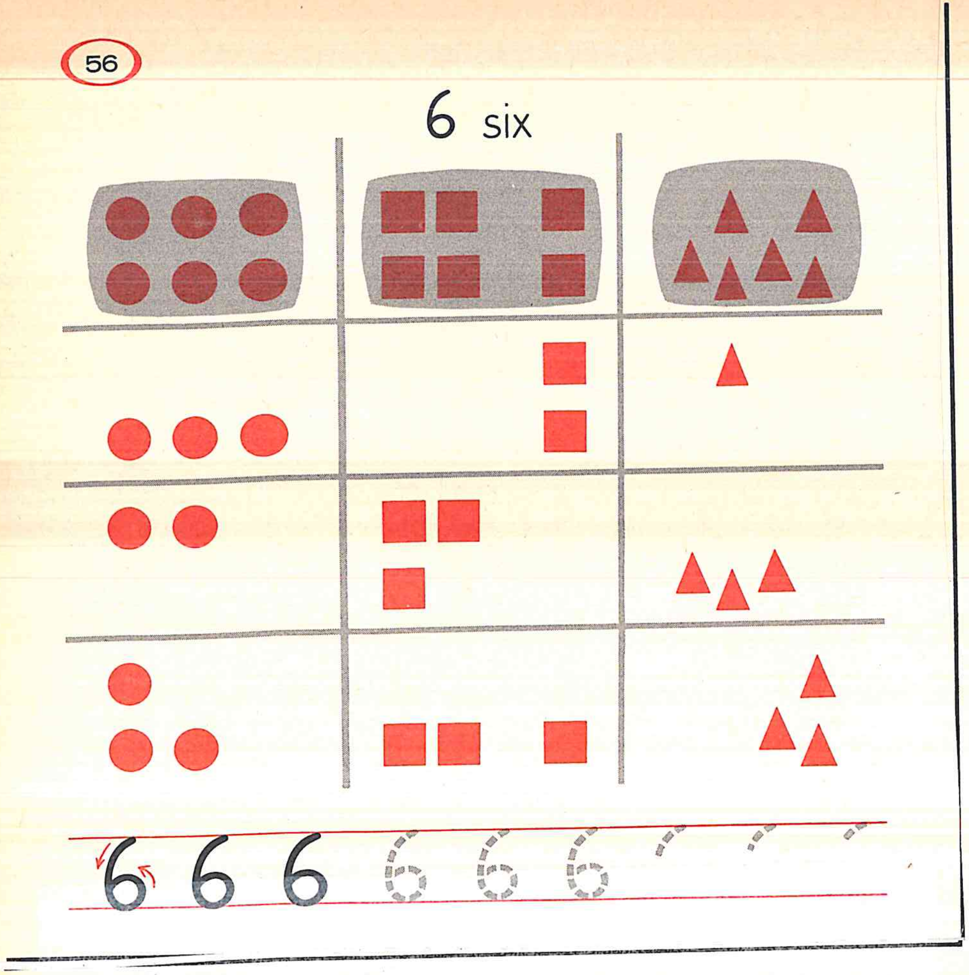
Take several 24″ x 36″ sheets of newsprint. Put a large numeral 6 in the center of each. Give the pages to groups of three or four children and have them illustrate six-ness with pictures cut from old magazines.



Materials needed: Scissors, paste, old magazines.

Have the children work at tables or use a floor area.

Share and evaluate the children's work. Let the children take turns showing how they see each 6-group.



56

Purpose

To develop skill in identifying and reproducing the 6-group.

Vocabulary

Six.

Materials

Individual counters.

Developmental Activity

Have each pupil take out 6 counters and put them in a horizontal row: 0 0 0 0 0 0. **Six is 6 ones. What other patterns can we make?** Have pupils discuss and see many kinds of groupings.

The discussion may be extended to the classroom environment if several groups of 6 have been previously arranged.

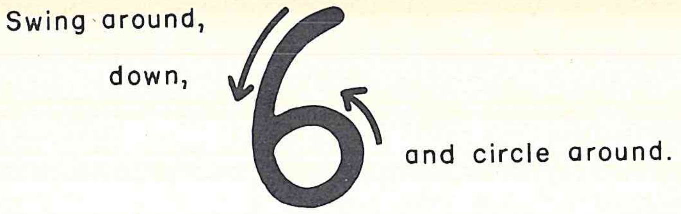
Procedure

Open your books to page 56.

What is the name of the numeral at the top of the page? [six] **What is the word after the numeral 6?** [It is the number word that stands for six.] **Look at it carefully and say it to yourself.**

Now look at the top row of colored patterns. Each one of them shows 6 in a different way. In the boxes underneath each pattern are some patterns for us to finish. Look at the first one in the second row. It looks like this. Draw the picture on the chalkboard. **How can we make it look like the one above it?** [by putting 3 dots like this] Demonstrate. **Take your crayon and draw the dots. Make the 6-pattern look like the one in the box at the top of the column.**

Demonstrate how to write the numeral 6 at the chalkboard.



Make several 6's, saying, **"Swing around down and circle around"** as you write each one.

Then have the children make several 6's on their desk tops with their fingers.

Have the children complete the page by writing the 6's at the bottom.

Circulate and give help to the pupils if necessary.

Extended Activity

Make up a set of Dot Flash cards for the common 6-patterns. Have the pupils practice to see how fast they can recognize any dot patterns for 4, 5, and 6.

Purpose

To develop facility in recognizing compact groups of objects without counting them.

Materials

Sets of counters for each pupil. A flannel board.

Developmental Activity

Put a set of 6 objects on the flannel board. Have the children arrange their sets of 6 counters in the same pattern on their table or desk tops. **Who can make another 6-pattern?**

Let individual pupils take turns showing how a new 6-pattern might be made on the flannel board. Have each pupil reorganize his counters to show the new 6-group. Repeat for 5.

Procedure

Open your books to page 57.

How many dots are in the first box? [6] **So a dotted 6 has been written under the box. Finish writing the numeral 6.**

What numeral should go under the next box in the same row? [5] **Write a numeral 5 on the line. Can you write the numeral that tells how many under each box?**

In the bottom row draw a dot picture to show how many the numeral stands for.

Extended Activity

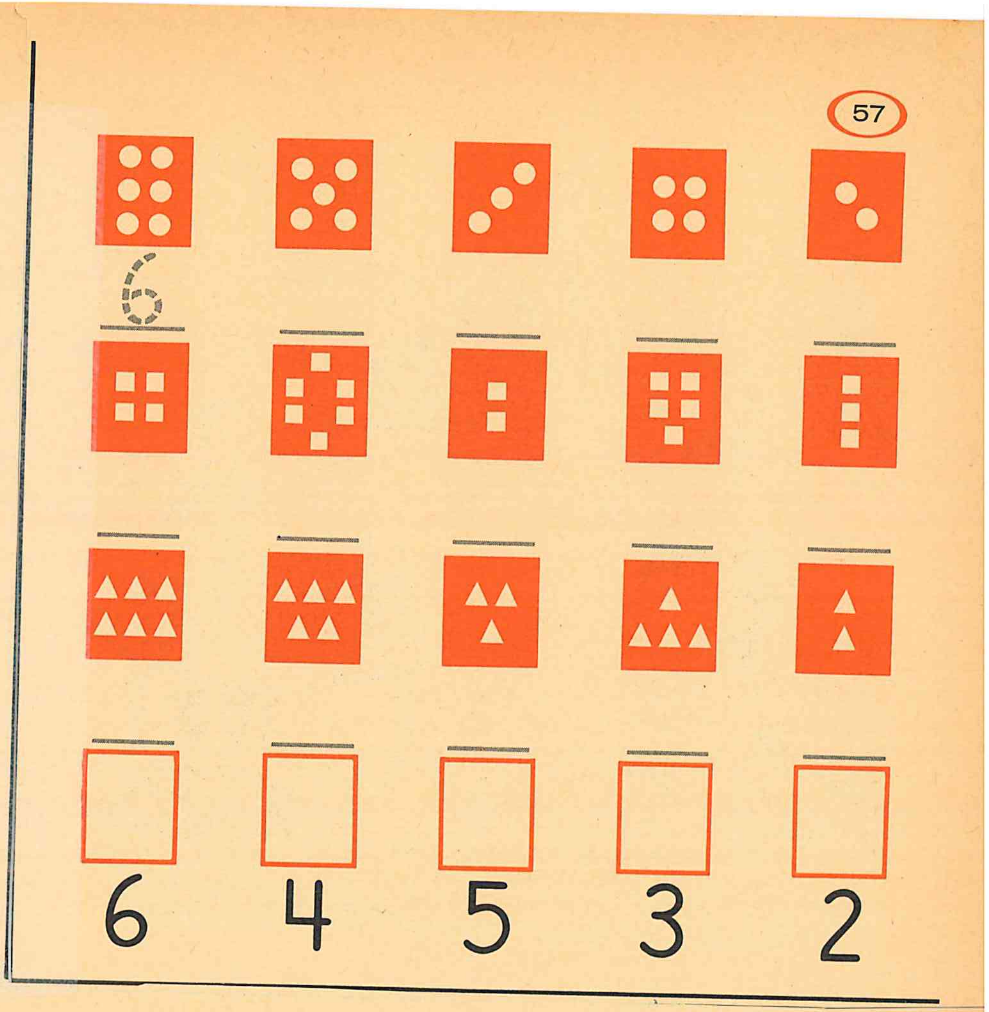
Have pairs of children take turns playing the Number Group game. Directions for making this game follow.

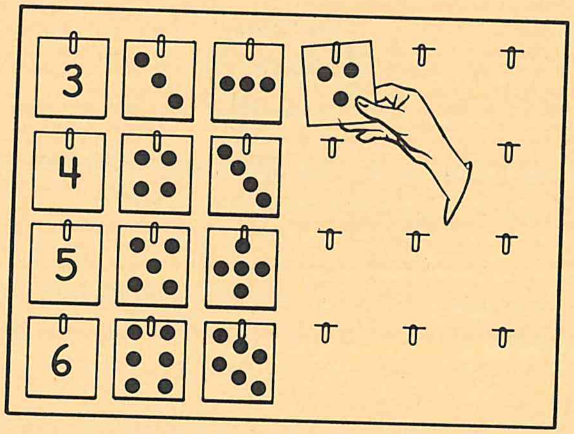
Place a 24″ x 36″ piece of tagboard in front of you so that the 24″ edges are at the top and bottom. At the top of the tagboard, measure in 1½″ from the left edge and place a small dot. Continue placing dots at 3½″ intervals across the tagboard. At each dot place a paper clip over the top of the chart so that a card can be slipped under it. Anchor each clip to the back of the chart with tape.

Then measure down 4½″ from the top. Beginning 1″ from the left edge, draw a 1″ line. Continue drawing 1″ lines at 2½″ intervals across the chart. Cut each of the 1″ lines to make a slot. Now measure down 4½″ and follow the above procedure to prepare the slots for the third row. Continue doing this until you have seven rows of slots all together.

Place a paper clip over the lower edge of each slot so that a 3″ x 4″ card can be slipped under it. Anchor the clip to the back of the chart with tape.

Cut 3″ x 5″ cards down to 3″ x 4″. Use one of these cards for each numeral from 3 to 6. (Later you will add cards for 7, 8, and 9.) These cards will be placed in the first column at the left of the chart.

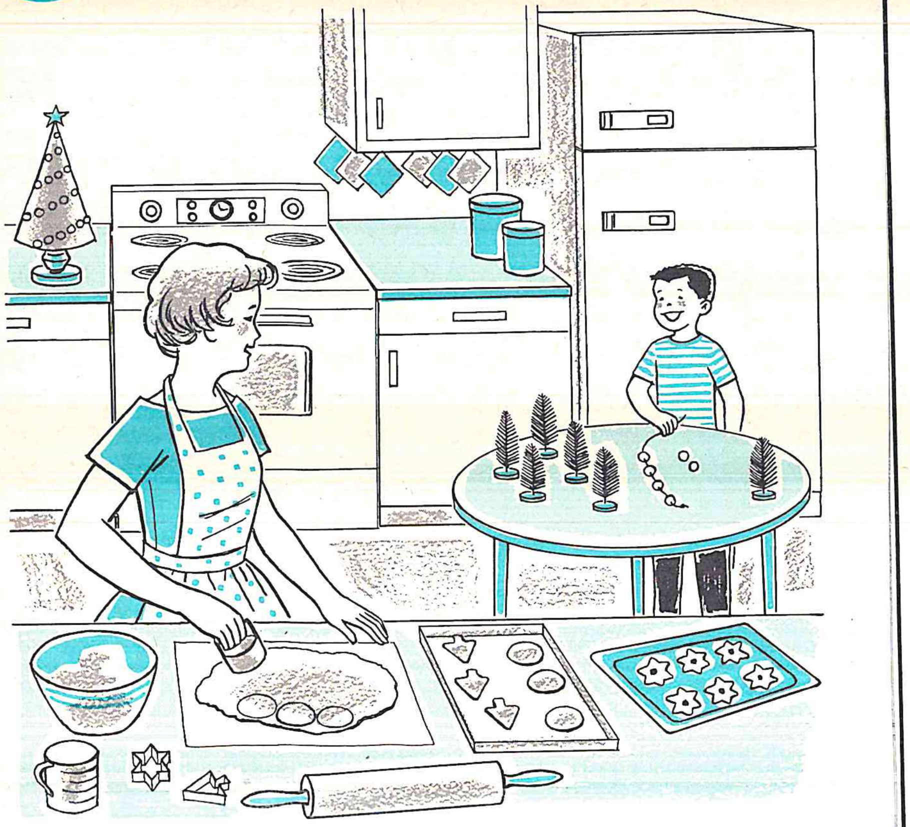




You may purchase red, blue, or green gummed dots (¼″ in diameter) from the Ideal School Supply Company, Chicago 20, Illinois, or from another school-supply house. Use these to create various dot patterns for 2, 3, 4, 5, and 6 on the 3″ x 4″ cards.

The dot cards are then shuffled together. The children slide each dot card into place under a paper clip in the appropriate row.

58 Making Christmas Cookies



58

Purpose

To become sensitive to the form and shape of objects, to develop the number sentence involving six-ness.

Vocabulary

Square, triangle, circle, all together, rectangle, star, small, other, another.

Materials

Cookie cutters shaped like stars, trees, circles. Ingredients for cookies (see recipe).

Developmental Activity

It might be fun to give the children a cooking experience around Christmastime. Children enjoy cutting, baking, decorating, and packing Christmas cookies for others and for themselves.

Do not hold children responsible for difficult measuring. They can do the mixing, sifting, stirring, and decorating.

MERRY CHRISTMAS COOKIES

(Makes about $3\frac{1}{2}$ dozen.)

Mix together:	$\frac{1}{3}$ cup soft shortening
	$\frac{1}{3}$ cup brown sugar
	1 egg well beaten
Add:	$\frac{2}{3}$ cup molasses
Sift together and stir in:	$2\frac{3}{4}$ cup sifted flour
	1 tsp. soda
	1 tsp. salt
	1 tsp. ginger
	2 tsp. cinnamon

Chill dough. Roll out $\frac{1}{4}''$ thick. Cut into shapes. Place on lightly greased baking sheet. Bake for 8 to 10 minutes at 375 degrees. Cool and decorate.

If the children have this firsthand experience, they should easily understand the lesson in the book.

Procedure

Ask the children to open their books to page 58. Discuss what Mother and Johnny are doing. Call attention to the shapes in the kitchen.

Put an X on everything that is square in shape.

Put a ring around everything you see that is shaped like a rectangle.

Put a green X on everything that suggests a triangle.

Put a blue X on everything that is shaped like a circle.

How many star cookies do you see on the tray? [6] **How do you see them?** [3 and 3] **What is the number sentence?** [3 and 3 are 6.]

How many Christmas-tree cookies are on the cookie tin? [3] **How many round cookies?** [3] **Who can write the number sentence?** [3 + 3 = 6]

How many small Christmas trees do you see? [6] **How do you see them?** [5 on one side of the table and 1 on the other] **What is the number sentence?** [5 + 1 = 6] **Who can say the number sentence another way?** [1 and 5 are 6.]

How many berries are on the string? [4] **How many more berries do you see?** [2] **How many are there all together?** [6] **Who can say the number sentence?** [4 and 2 are 6.] **Who can write it? Who can say and write it another way?** [2 + 4 = 6]

(Continued on next page.)

(Continued from page 58)

Call attention to other objects in the kitchen. Ask the children to say and write other number sentences about them.

Take your counters and show me all the things we have learned about six.

Extended Activity

Add a page to the booklet reflecting some Christmas activity which stresses six-ness.

Decorate a three-dimensional tree with objects.

Put beaded frosting on Merry Christmas cookies.

Arrange beads in various shapes.

59

Purpose

To practice the addition facts for 4, 5, and 6.

Vocabulary

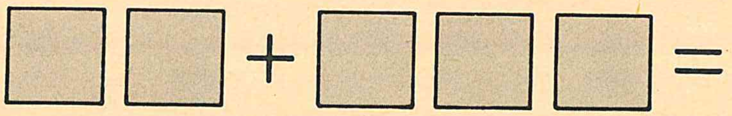
Number sentence.

Materials

Flannel board.

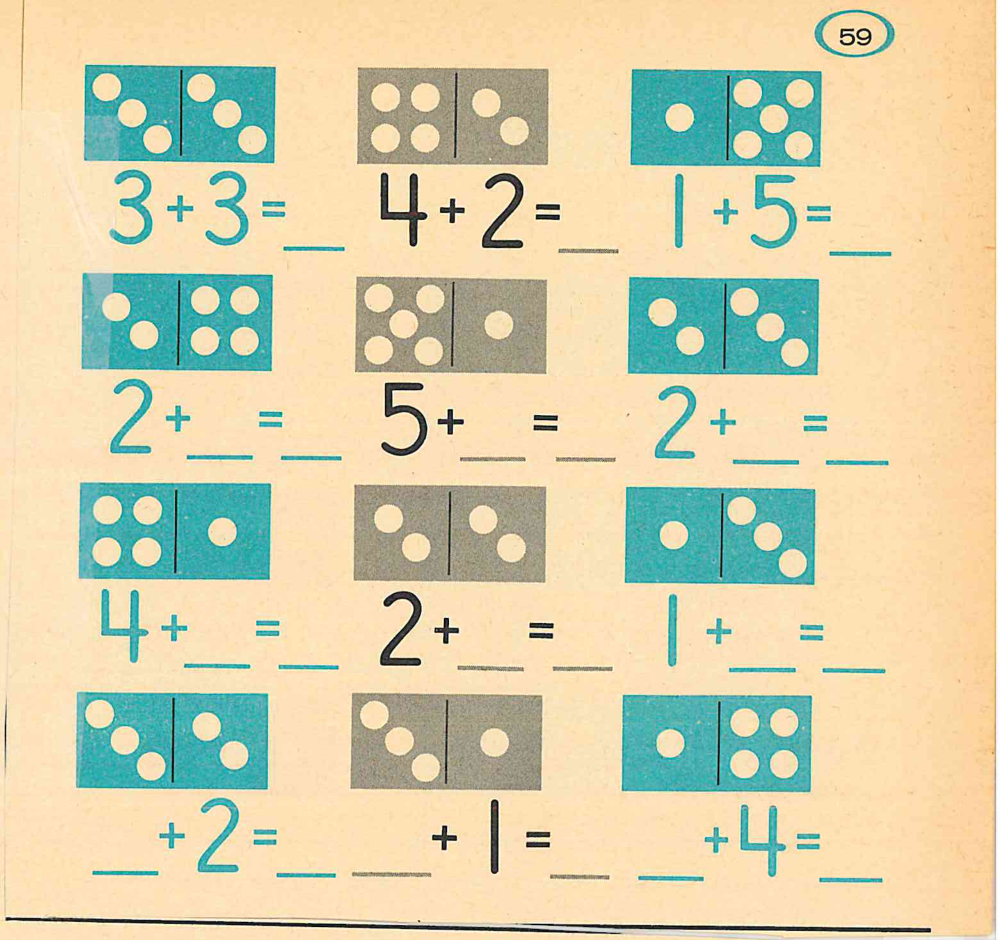
Developmental Activity

Put a 2-group and a 3-group on the flannel board:



Who can say the number sentence for this picture? [2 and 3 are 5.] **Who can write the number sentence on the chalkboard?** Have one or two pupils write the sentence on the chalkboard. Repeat this procedure for the combinations:

4 + 2 = 6 5 + 1 = 6 1 + 4 = 5
3 + 1 = 4 1 + 2 = 3 3 + 3 = 6


59

3 + 3 = _ 4 + 2 = _ 1 + 5 = _
2 + _ = _ 5 + _ = _ 2 + _ = _
4 + _ = _ 2 + _ = _ 1 + _ = _
_ + 2 = _ _ + 1 = _ _ + 4 = _

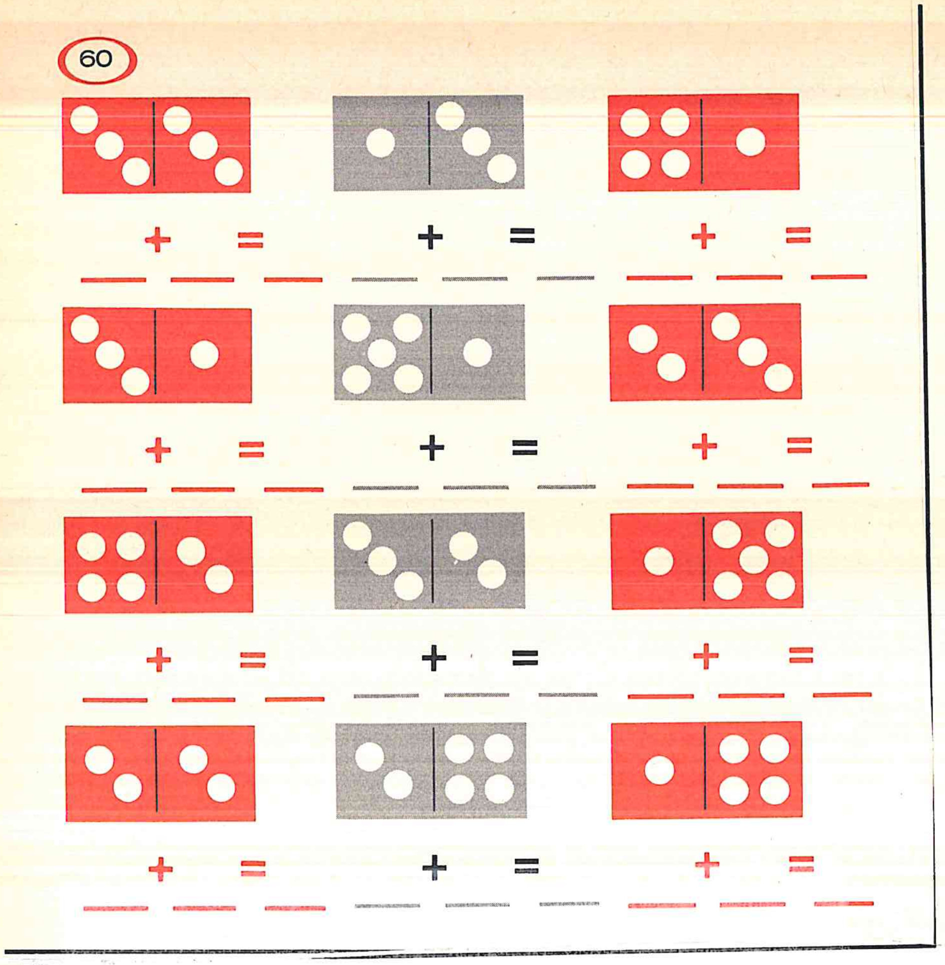
Procedure

Open your books to page 59.

What should we write to finish the first number sentence? [6.] **Write a 6 on the line. Now finish writing the number sentences.**

It is all right to use counters to help find the answers.

> Pupils who miss examples should: (1) go back and work out the answers with counters, (2) draw a dot picture of the example, (3) write the combination with its answer.
>
> At this level, review practice should start with *things,* i.e., counters, flannel board, and spool board.



60

Purpose

To understand the addition facts in the 6-group.

Materials

A set of counters for each pupil. A flannel board.

Developmental Activity

Put two subgroups for 6 on the flannel board or chalkboard. For example, 0 0 0 0 0   0. Combine them to get 6. Reverse the order: 0   0 0 0 0 0. Help the group discover that the *order* of putting together does not change the answer.

Create another pair of subgroups for 6. Repeat the procedure. Then have individuals write and say the number sentence that tells the story. For example, 0 0 0   0 0 0 becomes 3 + 3 = 6, or 3 and 3 are 6. Point to each element in the sentence as it is read.

Procedure

Open your books to page 60.

We are going to write the number sentence for each of the domino pictures. Look at the first one. Who can read it? [3 and 3 are 6.] **Write the number sentence. Then do the others. Write carefully. Be sure to put your numerals on the lines.**

Extended Activity

Have pupils in groups of two or three illustrate six-ness with old magazine pictures. Materials needed: 24″ x 36″ sheets of newsprint with a large numeral 6 in the center, old magazines, scissors, paste.

Be sure to allow plenty of time for the pupils to tell *how they see* 6 in each picture.

> The ability to *see* numbers as groups and subgroups appears to be of great help to most children in working with the addition and subtraction combinations.

Purpose

To develop the subtraction combinations in the 6-group.

Vocabulary

Subtract, subtraction.

Materials

A set of 6 counters for each pupil. A flannel board for the teacher.

Developmental Activity

Have each pupil take out a set of 6 counters and put them in a row: 0 0 0 0 0 0. Demonstrate on the flannel board or chalkboard as follows: **Here are 6 counters. If I take away 1, how many are left?** [5] **This is how we write the number sentence for** *subtraction:* [5] (have the group repeat the word *subtraction*) **$6 - 1 = 5$ or 6 take away 1 leaves 5.** Have the pupils read each element of the number sentence as you point to it.

Repeat this development for the other subtraction combinations in 6: $6 - 2$, $6 - 3$, $6 - 4$, $6 - 5$. Have the pupils use their own set of counters as they discuss each of the combinations.

Procedure

Open your books to page 61. This page is about subtraction. What does that mean?

Look at the first picture story. How many birds are in the box? [6] **What happens in the next box?** [2 of the birds are flying away.] **With your hand cover the 2 birds flying away. How many are left?** [4] **The number sentence at the end of the first row tells the story. Who can read it?** [6 take away 2 leaves 4.] **Write the 4 on the line.**

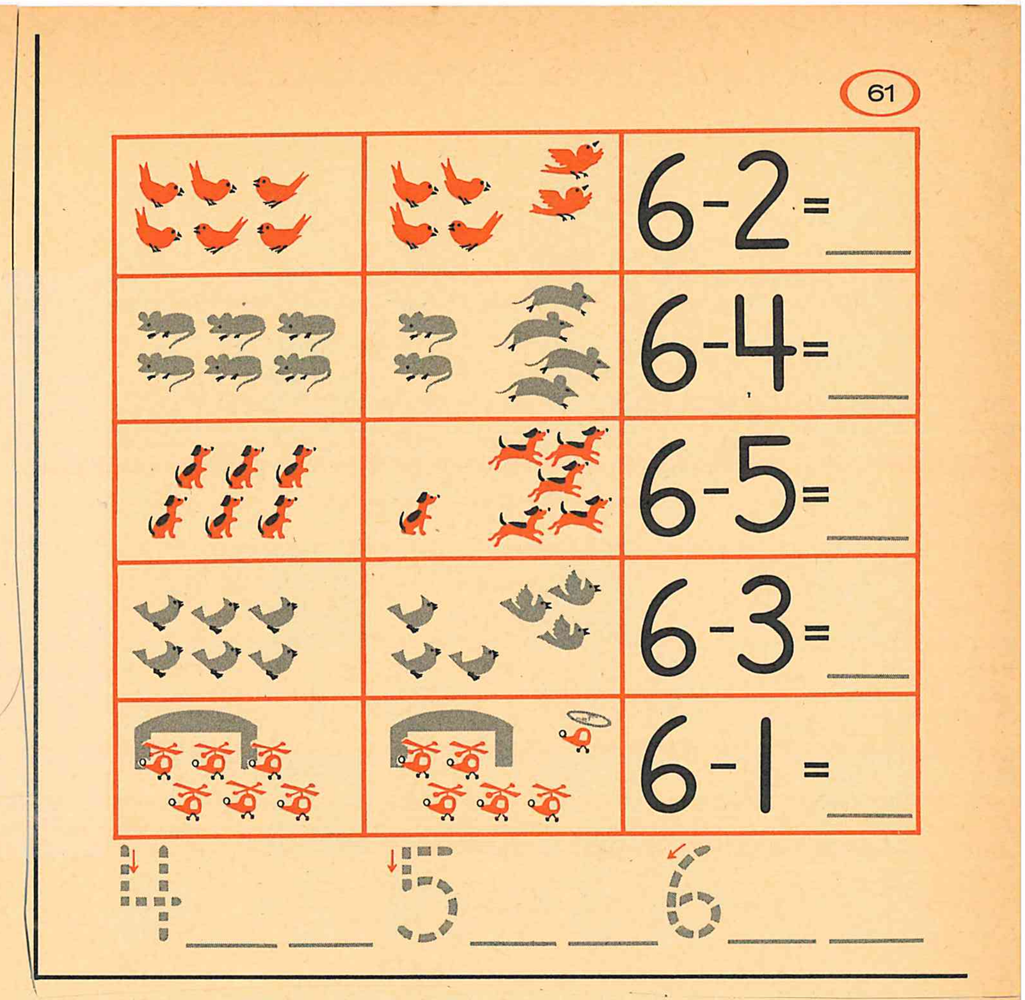
What do we see in the next row? Repeat as above for each row.

At the bottom of the page, have the children make two copies of each of the numerals. **Let's practice making our numerals correctly. Can each of us make two 4's, two 5's, and two 6's as good as those in the book? Let's try.**

Circulate and help as needed.

Extended Activity

Make sets of flash cards for the new subtraction facts of 4, 5, and 6. Have pairs of children play Number Flash. See page 34 for instructions.



61

6-2= ___

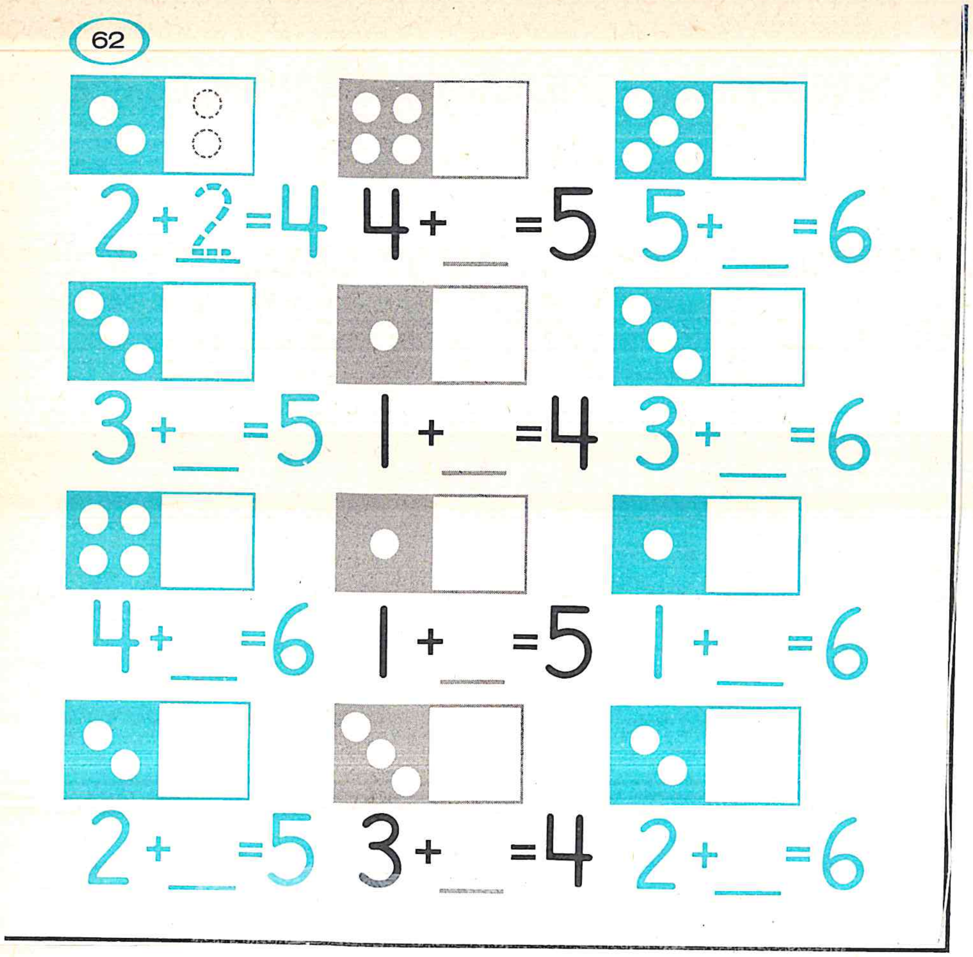
6-4= ___

6-5= ___

6-3= ___

6-1= ___

4 ___ ___ 5 ___ ___ 6 ___ ___



62

2 + 2 = 4
4 + ___ = 5
5 + ___ = 6
3 + ___ = 5
1 + ___ = 4
3 + ___ = 6
4 + ___ = 6
1 + ___ = 5
1 + ___ = 6
2 + ___ = 5
3 + ___ = 4
2 + ___ = 6

62

Purpose

To develop skill in finding the missing addend in the addition facts for 4, 5, and 6.

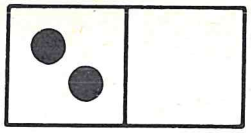
> Mathematically, *subtraction* is the process of finding the *missing addend,* and, as such, is the inverse of addition. One form of subtraction is finding *how much more*—for example, Joe has 2¢, a pencil costs 5¢; how much more does he need to buy the pencil?
>
> The number sentence is 2 + ______ = 5.

Materials

A set of counters for each pupil.

Developmental Activity

Put a domino box on the chalkboard with 2 dots in one end. **How many dots do we need in this end** (point to it) **to have 5 all together?**



Have each pupil arrange his counters to show a 2-group and a 3-group. Then have him combine them to make a 5-group. Repeat for each of the examples on page 62.

Procedure

Open your books to page 62.

Look at the first example. What do we need to find? [2 and how many more are 4?] **What is the answer?** [2] **Write 2 on the line and draw in the 2 dots in the domino box.**

Do the rest of the page.

Circulate and give help as needed. When pupils do not know the answers, have them work them out with their counters.

Speed practice with the Dot Flash cards will help many pupils at this stage.

Extended Activity

Have the pupils prepare a set of Number Flash cards for the addition combinations in 6.

Have them practice these flash cards. When they are slow or not sure of the correct answer, encourage them to find the answer with their counters.

Purpose

To use a natural situation to teach the children to count by 2's.

Vocabulary

Two, four, six, eight, ten, twelve, fourteen, sixteen, eighteen, twenty, twenty-two, twenty-four.

Materials

Set of number cards with 1 and 2 marked on alternate cards. Cubes or other objects to further the experience of counting by 2's. (See Extended Activity.)

Developmental Activity

Teachers have many techniques for dividing the class into groups during a physical education or rhythm game. The following suggestion is one: Ask the children to form a circle. Make it as large as space permits. Tell the children that they are going to be given number names, either one or two. Have a child go around the circle counting the children: 1–2, 1–2, 1–2, etc. Ask all the *ones* to raise their hands. See that they are given cards with 1 on them. Have the *twos* raise their hands. Have someone give them a card bearing a 2.

Now ask each child with a card marked 2 to face the boy or girl on his right. Have them join hands, walk around the circle, and then stop, facing each other. Teach them a simple folk song or dance, such as "Clap, Clap Partner" or "Chimes of Dunkirk."

After the dance has been enjoyed, show the children how to count by 2's. A diagram as shown here should be placed on the chalkboard.

2 4 6 8 10 12 14 16 18 20 22 24

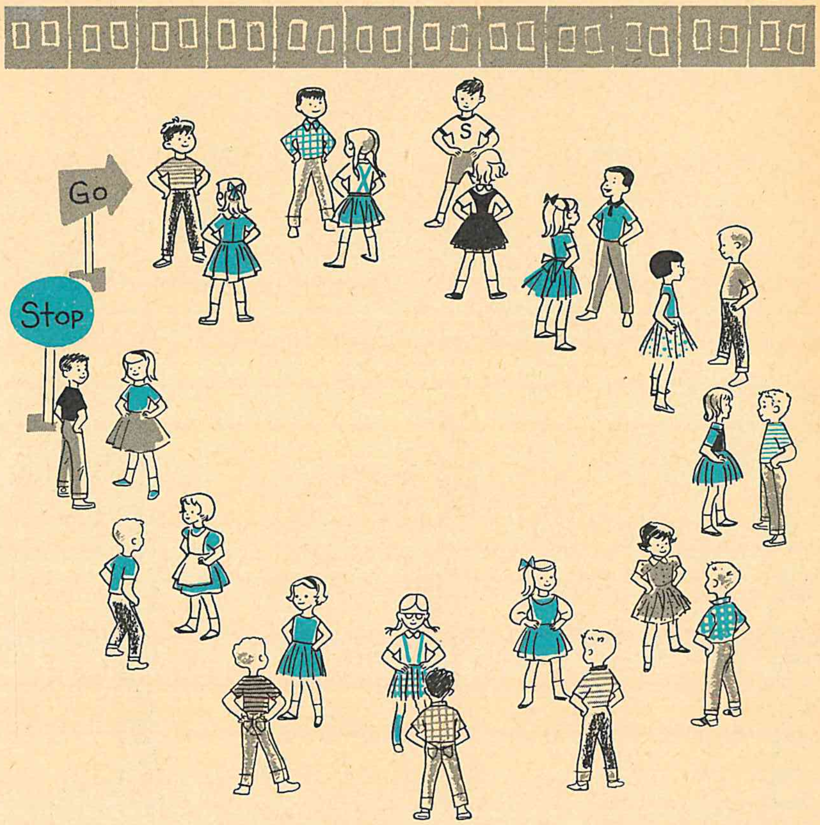
1 3 5 7 9 11 13 15 17 19 21 23

I have written all the numerals from 1 to 24 in two rows. The numerals in the top row (point to them) **are called even numerals. When we read or say the numerals in the top row, we are counting by 2's.**

Now let us all count by 2's: 2–4–6–8 etc.

Procedure

What are these children playing? Let the children guess. **Do you think the children are having fun? The children are standing in a __________.** [circle] **With one group of children on the outside and one group on the inside, we say it is a double circle.**



Now look at the squares on the chalkboard in the picture. Starting with the first group of 2, let us see how far we can count. Point to the first group and say, "2." Point to the next group and say, "4." Begin by counting in unison. Observe the children. Take note of those who appear ready to try it alone. Select individuals or pairs or groups of children to count by 2's.

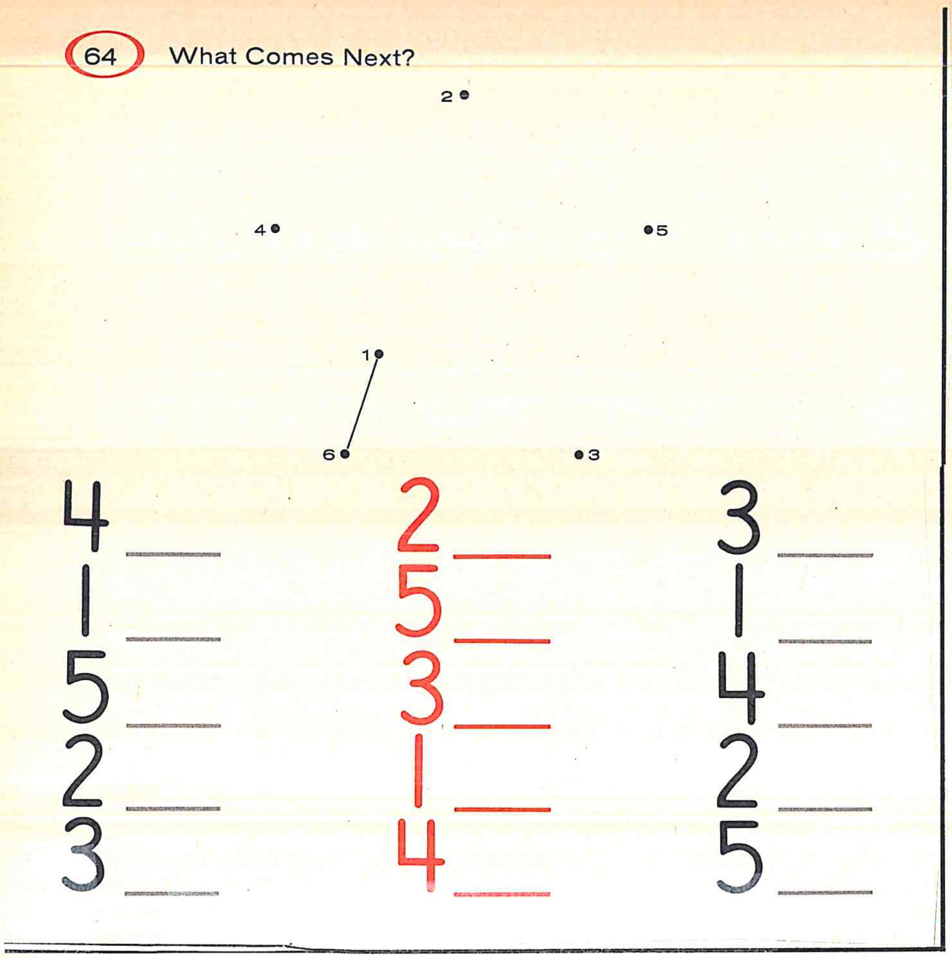
Now let us see how we can count the children. Find the sign that says "go." Write "go" on the board. **We will go up and around the circle.** Select a child to lead the counting. (Go clockwise around the circle.) **Stop when you come to the stop sign.** Continue with variations.

Extended Activity

In order to count the children in the picture, let those who have the ability write the numeral above each couple.

Others who need more practice can count objects about the room—cubes, pencils, counters, or other materials.

Keep an inventory check of those who need more work in counting by 2's.



64 What Comes Next?

4 ___
1 ___
5 ___
2 ___
3 ___

2 ___
5 ___
3 ___
1 ___
4 ___

3 ___
1 ___
4 ___
2 ___
5 ___

64

Purpose

To give practice with the number series idea (what comes next). To practice writing numerals correctly.

Vocabulary

Straight line, half.

Materials

Flannel board, rulers for pupils.

Developmental Activity

Put the 5 points of a star on the chalkboard (as in the children's books).

Boys and girls, sometimes we use numerals to help us follow directions. If I draw a straight line from 1 to 2 and then from 2 to 3, 3 to 4, 4 to 5, and 5 to 6, I will have a star. Do this with chalk as the lesson is presented.

In order to follow directions like these, we must know what numeral comes next. I am going to put a numeral on the flannel board or chalkboard. Use a numeral 3. **Can you tell me what numeral comes next? Raise your hand if you know.** [4] Continue in this fashion with 5, 1, 2, and 4.

Procedure

For this lesson, tear out page 64 and let each child work with the single sheet.

At the top of the page is a set of numerals. Can you find 1? 2? You are to draw a straight line from 1 to the numeral that comes next. Then draw a straight line from 2 to the numeral that comes next after 2.

What is a straight line? Discuss. **Are there some straight lines in the room?** Discuss. **What can we use to help us make straight lines?** [ruler] At this point, have the pupils take out their rulers, if they have them, or pass out rulers to the group. **Use your ruler to draw the lines. Remember, you are to draw straight lines from 1 to the numeral that comes next. Then from 2 to the next numeral until you finish drawing the star.**

On the bottom half of the page you are to write the numeral that comes next. Write numeral 4 on the chalkboard.

At the top of the first column you see a 4. What numeral comes after 4? [5] **Write a 5 after the 4. Can you do the others?**

Circulate to give help as needed. Carefully check to make sure the pupils make the numerals correctly.

Extended Activity

Each day as part of reading the calendar, work with the *what-comes-next* idea. **The numeral for today is 4. What is the numeral for tomorrow?** [5] Daily informal work at the calendar can lead to rapid development of the number series.

Purpose

To test the readiness of the group to go on. This test covers the following:

1. Series—Knowledge of fifth and sixth
2. Group—Recognition of 4, 5, 6
   Reproduction of 5 and 6
3. Addition facts in 6
4. Subtraction facts in 6

Procedure

Open your books to page 65. We will do this page to see how well we have learned certain things.

Look at the number 1 row with the trees. Draw a ring around the sixth tree.

Look at the number 2 row with the rockets. Draw a ring around the fifth rocket.

Look at the row with the numeral 3 in front. After each of the groups write the numeral that tells how many are in the group.

Find the number 4 row. Draw a ring around 5 of the squares and then write the numeral 5 on the line.

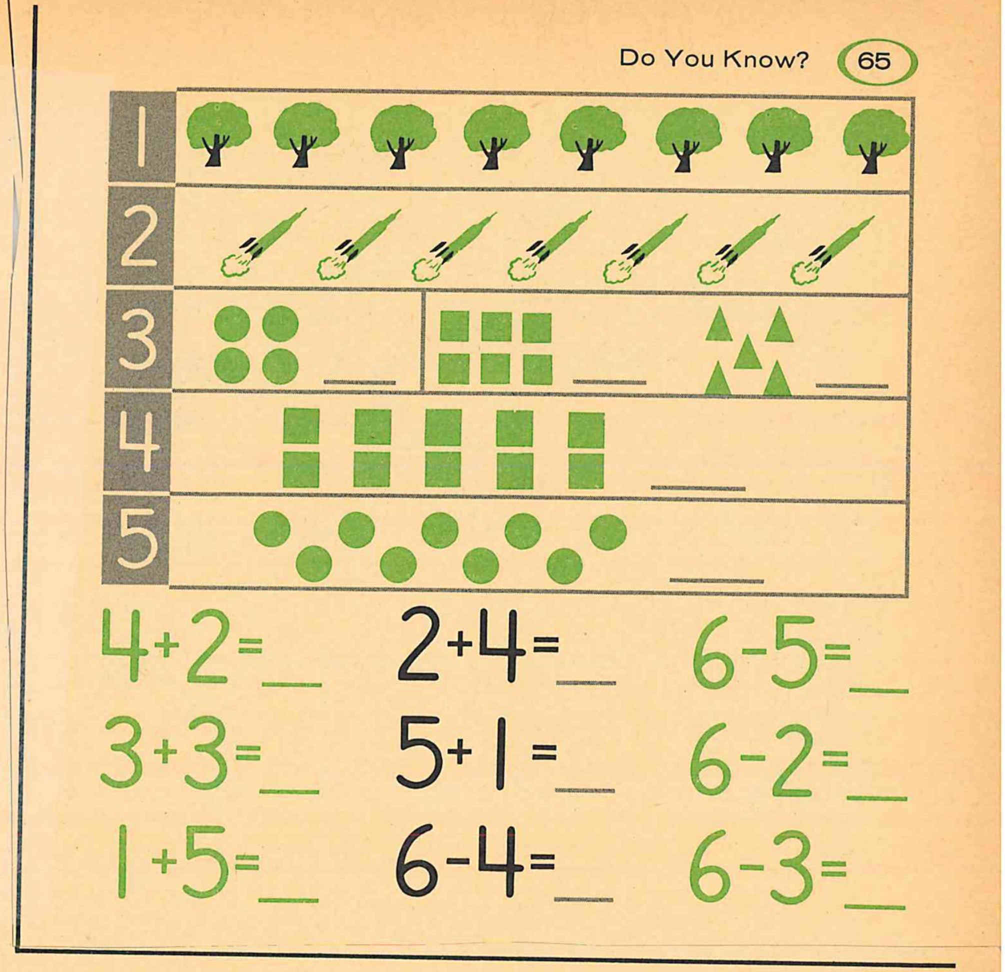
Find the number 5 row. Draw a ring around 6 of the dots and write the numeral 6 on the line.

At the bottom of the page, work the two rows of addition and subtraction examples.

Circulate and check the work in the last two rows. Are we sitting up tall?

Extended Activity

Retain this page in pupil's folder for possible parent conferences.

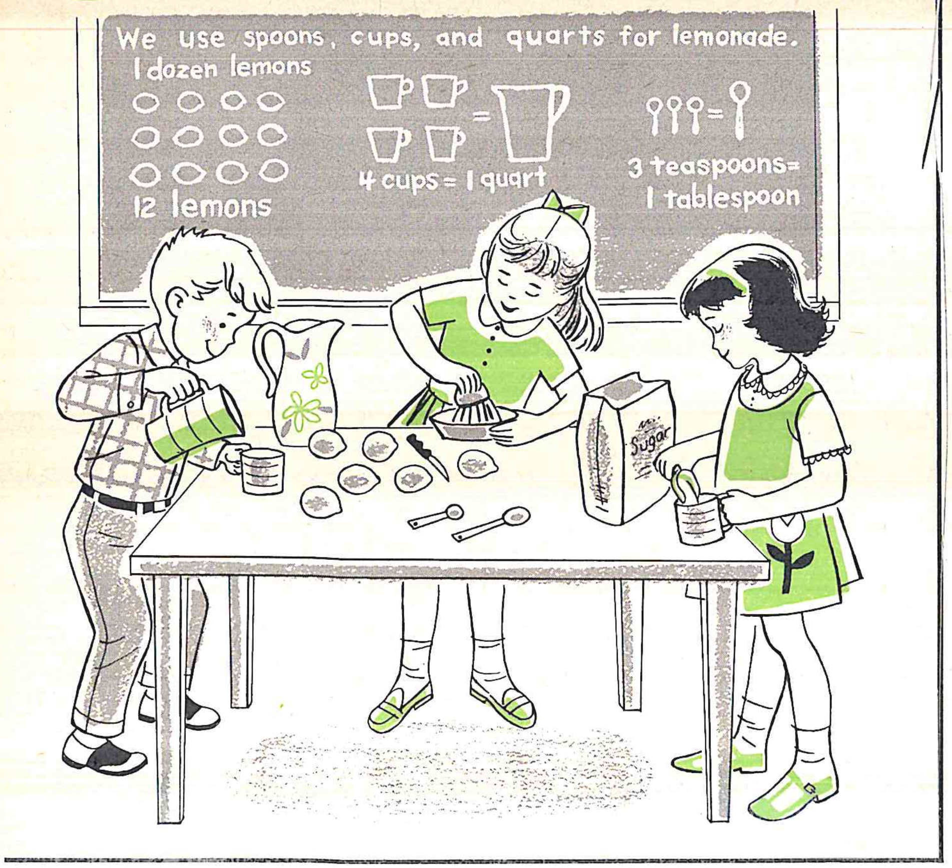

Do You Know? 65

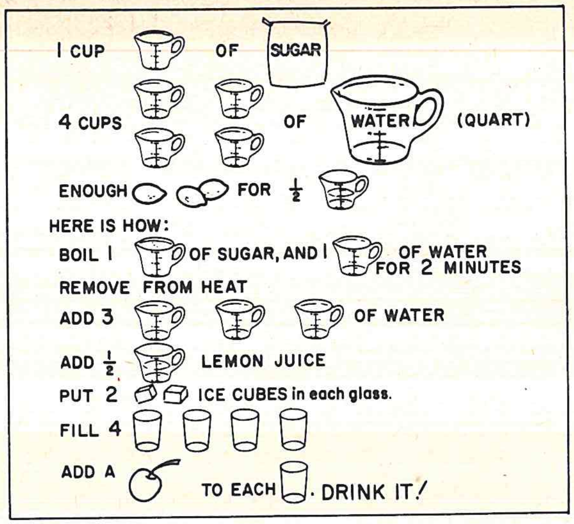
4+2=_ 2+4=_ 6-5=_

3+3=_ 5+1=_ 6-2=_

1+5=_ 6-4=_ 6-3=_

66 Cups and Spoons and Dozen


We use spoons, cups, and quarts for lemonade.
1 dozen lemons
12 lemons
4 cups = 1 quart
3 teaspoons = 1 tablespoon
Sugar



(This recipe makes 4 glasses of lemonade.)

66

Purpose

To demonstrate that 4 cups are equivalent to 1 quart; that 3 teaspoons equal 1 tablespoon; and that 12 things make a dozen.

Vocabulary

Teaspoon, tablespoon, measuring cup, dozen, quart, whole.

Materials

Fruit juicer, measuring cup, quart measuring cup, teaspoon, tablespoon, lemons, sugar, water, cherries, ice cubes, pan, hot plate for boiling water, money for purchasing lemons and sugar.

Developmental Activity

Place on the board charts similar to those on book page 66.

Do the recipe for lemonade in rebus writing on a chart or on the chalkboard.

Have the children work in groups of 4. Several groups can work simultaneously if adequate materials are available.

Procedure

What are the children in the classroom doing? Does this picture remind you of our classroom?

Point to the chart of lemons. How many lemons do you see? [12] **Does anyone know another name for 12 things?**

Show me with your hands the 1 object that holds as much as 4 cups.

Now show me the small spoons. These are teaspoons. Could the large spoon hold the same amount as 3 teaspoons? [yes] **The large spoon is a tablespoon. 3 teaspoons hold as much as 1 tablespoon.**

Now find the lemons on the table. How many do you see? [6] **Put a ring around the same number of lemons on the chart.**

Find the measuring cups on the table. How many measuring cups do you see on the chart on the board? [4]

Now draw a ring around the picture of the thing on the chalkboard that holds the same amount as 4 cups. We say that 1 quart equals 4 cups or 4 cups equal 1 quart. Find the quart container the boy is using. Draw a line between this quart container and the quart container drawn on the chalkboard.

Find the tablespoon or large spoon on the table. Put a ring around the number of teaspoons on the chart that is equal to 1 tablespoon.

Extended Activity

Fold a 24″ x 36″ sheet of paper into 4 equal parts. Ask the children to suggest objects that are sold by the dozen. Draw a dozen different things in each folded square, such as cookies, cupcakes, eggs, Christmas ornaments.

Encourage the children to demonstrate to their parents what they have learned about cups, spoons, and quarts.

67

Purpose

To become aware that some liquids are sold in cartons and some in bottles. To recognize that they are available in different size containers. To become acquainted with the measures of pint, half pint, quart, gallon, half gallon.

Vocabulary

Pint, quart, gallon, half gallon, carton, half as much.

Materials

Cartons of standard measures, glass jars of standard sizes. Crayons.

> The emphasis at this level is on recognition of liquid measurements more than it is upon equivalents.

Developmental Activity

If possible, the class should visit a grocery store or supermarket to see how milk, fruit drinks, and cottage cheese are displayed. Ask the man in charge to explain what the various sizes are called and what is contained in each carton or bottle.

Upon returning to the class, make a display of cartons and bottles used for standard liquid measures. See how well individual children can identify them.

Procedure

Page 67 in the book may be used in connection with the visual display.

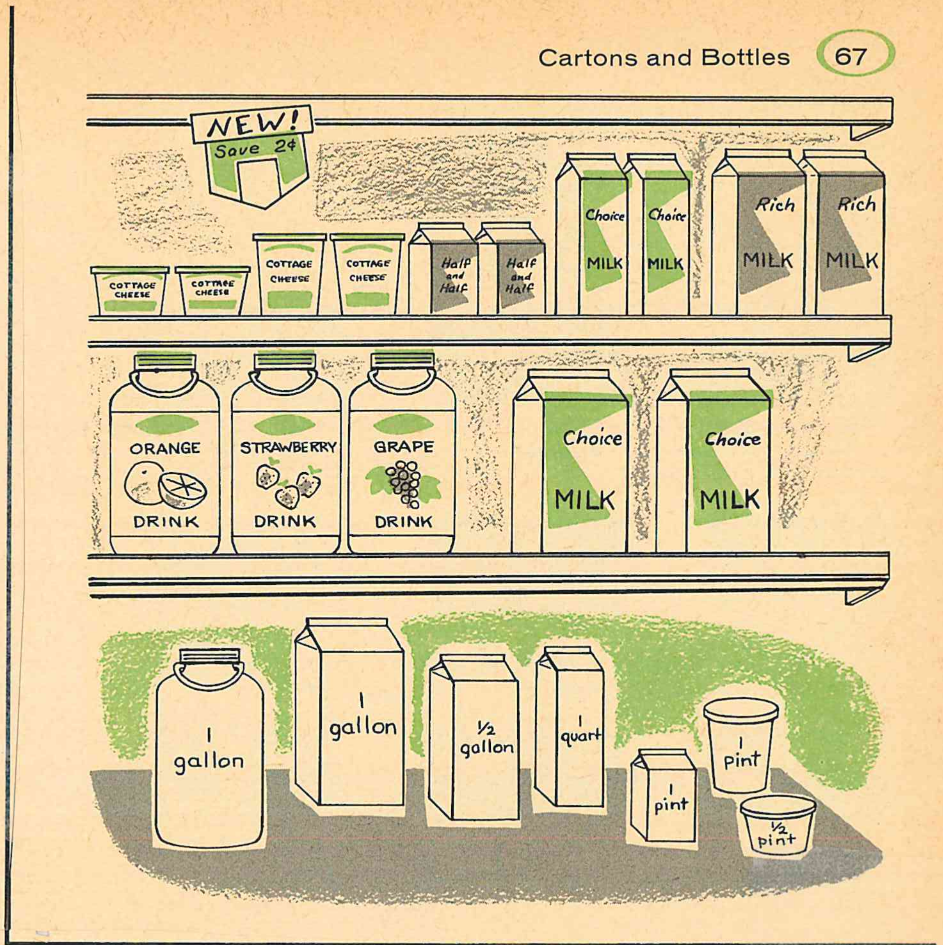
Discuss the picture. Talk about size, shape, content, and use. **Show me the largest jar in our display. Now look at the largest jar on this page. It is called a gallon jar. Put a red X on each of the gallon jars on the page.**

Can you find a carton that holds a gallon, also? Yes, it is this large one. Point to it. Put a red X on all of the gallon cartons on the page. What is in these gallon cartons? [milk]

Demonstrate with water that a gallon jar and a gallon carton each hold the same amount of liquid.

Now find the next largest carton in our display. Find it in the book. It holds half as much as a gallon. What do you think it is called? [half gallon] **Put a triangle on everything on the page which is the same size as this half gallon.** Check the children's work to see if they understand.

Can you find the next largest carton in our display? This holds as much as 4 cups. What is it? [quart] **Now find the quart container at the bottom of the page. Put an orange X on all the quarts on the page.**



Who can find the next largest carton in our display? It is called a pint. Find the pint container on the book page. Mark each of the pint containers with a blue X. Are they all shaped alike? On this page the cottage cheese is in the round pint containers. What is in the other pint containers? [milk]

Some families are small. They buy cottage cheese in containers half the size of those we have just marked. What do you think this size container is called? [half pint] **Mark each half pint on this page with a yellow X.**

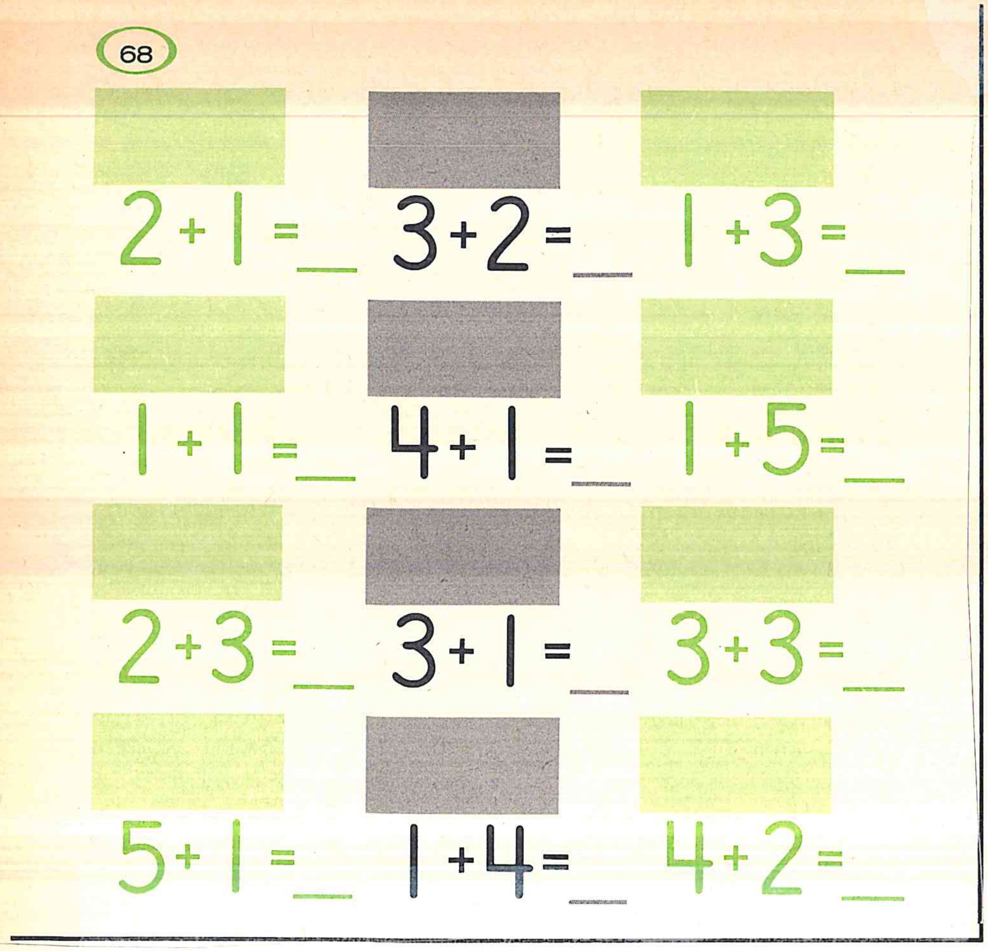
Extended Activity

Plan activities to use these new measurement learnings. Have the class engage in them as soon as possible.

The children might fill an aquarium. This gives an opportunity to use gallon measurement.

The class may visit the cafeteria cook. Ask her to show the children the containers in which she buys milk. **Does the milk come in bottles or cartons?**

Plan a simple cooking experience, such as making pudding, in which liquid measures are used.



68

2 + 1 = _ 3 + 2 = _ 1 + 3 = _

1 + 1 = _ 4 + 1 = _ 1 + 5 = _

2 + 3 = _ 3 + 1 = _ 3 + 3 = _

5 + 1 = _ 1 + 4 = _ 4 + 2 = _

68

Purpose

To review the 15 addition facts through 6.

Procedure

Open your books to page 68.

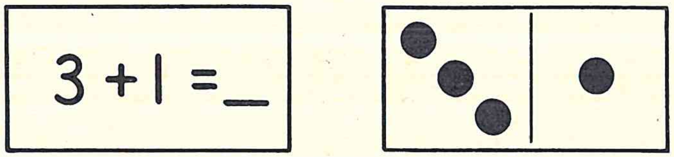
Look at the first example in the top row. It is easy. Two and 1 are ______. [3] **Write a 3 on the line. In the box above the example, draw a dot pattern for 2 and 1. Be sure to put the pattern for 2 above the numeral 2 and the pattern for 1 above the numeral 1.**

Extended Activity

Have each pupil complete a set of 3″ x 5″ flash cards with the number sentence on one side and the picture story on the other. Daily practice with these cards will help children learn the addition combinations rapidly.

Have the children tear out this page and take it home to show that they have learned the first 15 addition facts and what they mean.

If children respond slowly to some of the combinations, have them practice with the Dot Flash cards until they can see the patterns as groups quickly and do not need to count to find the correct number.



Purpose

To review the subtraction facts through 6. To teach subtraction in vertical form. To introduce checking, as showing how to find the answer with manipulative materials.

Developmental Activity

We have been writing number sentences for subtraction this way: 4 — 2 = 2. We can also write subtraction number sentences like this:

$$\begin{array}{r}4\\ -2\\ \hline\end{array}$$

Write subtraction examples in the vertical form on the chalkboard. Have several children write the answers to them.

Now put the following on the chalkboard:

$$\begin{array}{cr}0 & 3\\ 0 & -1\\ \cline{2-2} 0 & \end{array}$$

Look at the example on the chalkboard. Three take away 1 leaves ______. [2] **So I'm going to write a 2. In the domino picture I'm going to cross out 1 of the dots to show that we have taken it away.**

$$\begin{array}{cr}0 & 3\\ 0 & -1\\ \cline{2-2} \cancel{0} & 2\end{array}$$

Can you tell me the number sentence for this? [3 — 1 = 2] **Let's all read it as I point to each part.**

Procedure

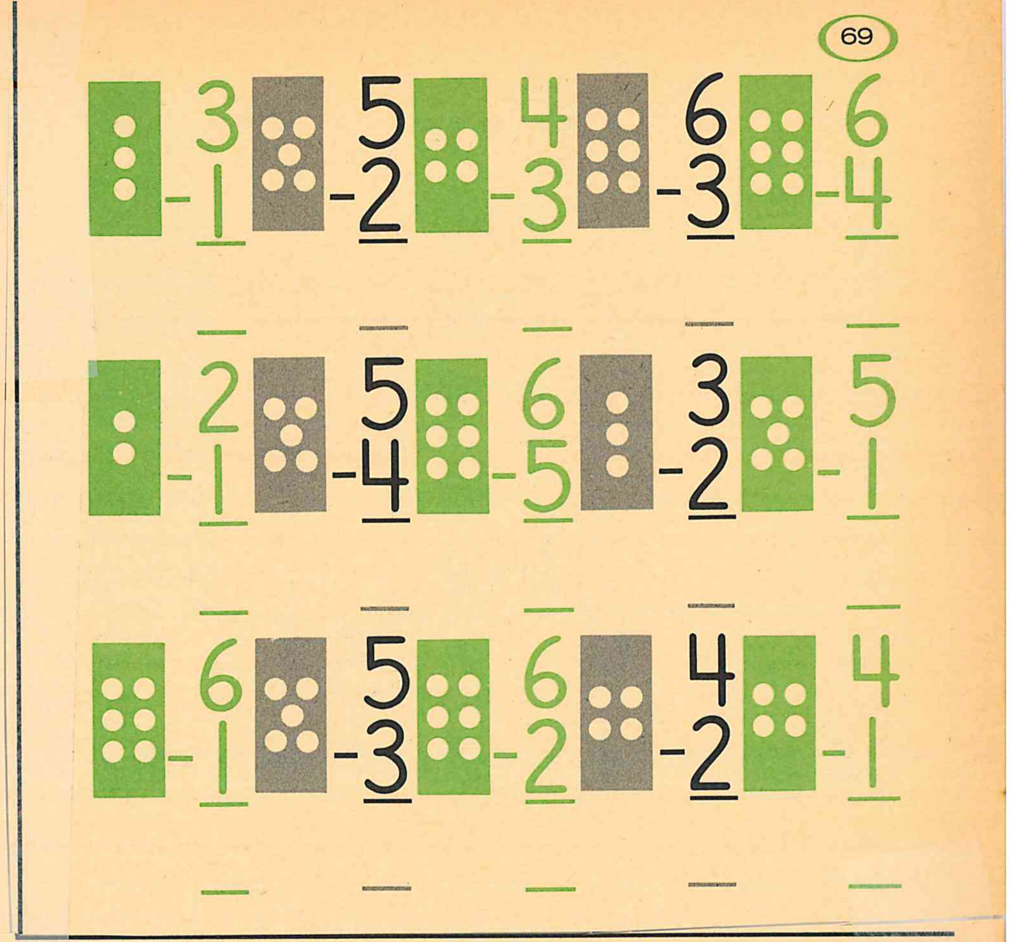
Open your books to page 69.

The first box is just like the one on the chalkboard. Let's see how well we can do these.

Are we all sitting up straight? Write carefully.

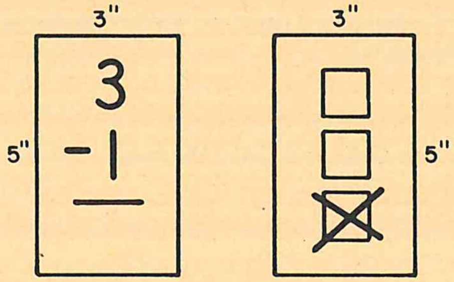
Circulate and give help to individual pupils as needed.

> For individual pupils who respond slowly and/or incorrectly, give abundant practice with counters and dot flash cards.
>
> Every pupil should be able to *show* how to find the answer. This is the beginning of checking.



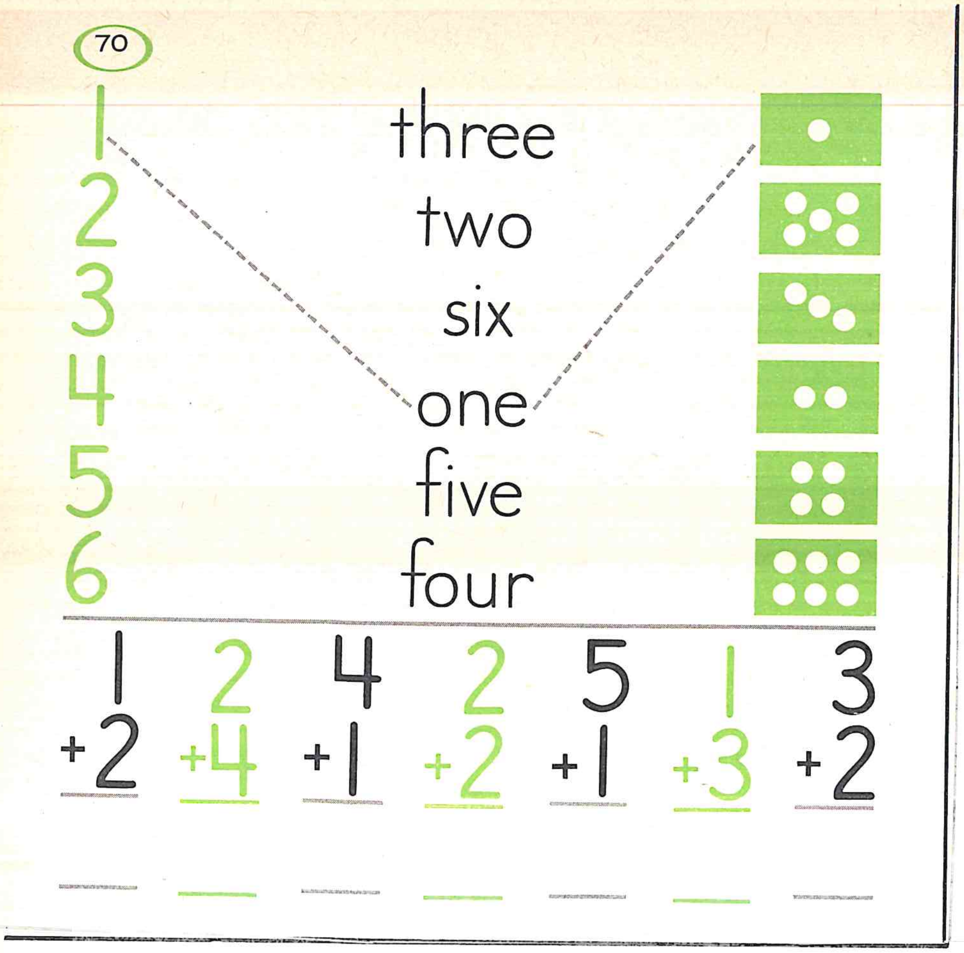
Extended Activity

Have each pupil complete a set of 3″ x 5″ subtraction flash cards with the number sentence on one side and the picture story on the other.



There should be daily practice until automatic mastery is achieved.

Have children take this page home to show that they have learned the first 15 subtraction facts and what they mean.



70

1 2 3 4 5 6

three
two
six
one
five
four

$1 + 2$, $2 + 4$, $4 + 1$, $2 + 2$, $5 + 1$, $1 + 3$, $3 + 2$

70

Purpose

To relate three symbols for a number—numerals, words, dot patterns—to each other.

Vocabulary

One, two, three, four, five, six, column.

Materials

A set of counters for each pupil.

Developmental Activity

Have each pupil put 6 counters on his desk or table top.

Boys and girls, today I'm going to write a number word or a numeral on the chalkboard. You are to make a group pattern with your counters to show me how many it stands for. Start by writing the numeral 4 on the chalkboard. Have the children make the pattern and frame it with their hands. Make a visual check of each child's work. Follow the same procedure with 2, 6, 1, 3, and 5.

Next put the number words—three, five, two, six, one, four—one at a time, on the chalkboard. Again have the pupils show how many with their counters, frame the pattern with their hands, and look up when they are ready for the next one. Make a visual check of each pupil's work. Move quickly through each series and then repeat as necessary.

Procedure

Open your books to page 70.

What is the first numeral in the first column [1] **Now find the word that stands for 1 in the second column and draw a line to it. Then draw a line from the number word to the dot picture that goes with it. The dotted lines show you how to go.** Have the group work the first one.

At the bottom of the page write the answers to the addition examples.

Now do the page. Circulate and give help to those who need it.

Extended Activity

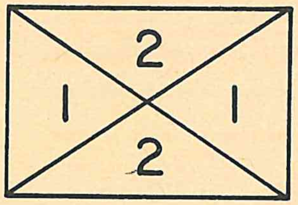
Provide each group of two or three pupils with a 24″ x 36″ sheet of newsprint with the word *four, five,* or *six* written in the center. Have the children illustrate the word with pictures cut from old magazines. Materials needed: Scissors, paste, old magazines.

Purpose

To introduce column addition with three addends.

Materials

3 bean bags and a 24″ x 36″ sheet of tagboard marked as shown here:



Developmental Activity

This game is called "Bean Bag Toss."

Fasten the tagboard to the floor with masking tape at the corners. Draw a throwing line 3 feet away.

Each member of the group gets 3 throws. A scorekeeper records the scores on the chalkboard. (The teacher should show the scorekeeper how to do this the first time, then give help to new scorekeepers, as needed.)

Rules: If a bean bag is thrown on the line of the tagboard, give credit for the larger number. If a bean bag misses the target, record a zero for that throw.

Have the first pupil make 3 tosses. Record the scores on the chalkboard in vertical form. Add from the top down.

$$\begin{array}{ll} 2 & \\ 1 & >3 \\ \underline{2} & \\ 5 & \end{array}$$

Two and 1 are 3. Write a 3 as shown. This serves as a visual device during the introduction to three-addend addition. **Three and 2 are 5.** Write the answer.

After you have added several of the scores with the children observing, have the scorekeeper add the other scores. Encourage him to use the visual device at first. Play the game until each member of the group has had a turn. Help the children, as needed.

Procedure

Open your books to page 71. Discuss the picture. **It shows the game we have just been playing. Do you think we can add these scores correctly? What is the answer to the first one?** [4] **Now go ahead and work the others.**

1 2 +1	1 2 +2	1 1 +1	2 1 +0	2 1 +2	1 0 +2	2 2 +2
1 +2	2 +0	1 +0	0 +2	1 +2	1 +1	0 +1

When everyone has finished, ask the group to do 2 more things. **Now draw a ring around the largest score in each row. Draw a box or square around the smallest score in each row.**

Extended Activity

Have pairs of children play "Bean Bag Toss" and keep the scores for 3 throws.

						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

72

Purpose

To extend the understanding of numbers in series through the 20's.

Vocabulary

Calendar, month, after.

Materials

Classroom calendar.

Developmental Activity

Boys and girls, we know how to say the number names from one to thirty. Today we are going to do some work with numerals on calendars.

Let's read the class calendar together. Read as I point to each numeral. Quickly have the group read from 1 through 30 from the calendar. If it is a fast group, have them read the numerals backwards, too. If the group cannot read backwards from 30, start with 10 and have a "count down."

I wonder how well we know what number comes next? What comes after 2? 5? 6? 4? Now I'm going to ask some harder ones. What comes after 11? Use the calendar to help if you wish. Work this exercise with eight or ten examples *orally*.

Now I'm going to write a numeral on the chalkboard. Can you tell me what comes next? One at a time, put 7, 12, 17, 21, 24, 14, 15, 19, 26, 28 on the chalkboard. Encourage the group to look at the calendar if they need help.

Procedure

Open your books to page 72.

Look at the calendar. I'm going to say a number. As I do so, put your finger on the numeral. Quickly move through ten or fifteen of the numbers. Check to see that the children are pointing to the correct numeral.

Now I'm going to say a number, and you are to put your finger on the one that comes after it. Do you think you can? Ready:

2—5—9—14—16—12—20—22—26—30—7—15.

Now take your orange crayon. Put an X on the numeral which comes after each one that I say. Repeat the series above and check.

Extended Activity

Each day for several weeks, as part of the regular calendar activity, ask, "**What is the numeral for today? What will the next one be? Tomorrow will be the ________.** (fifth, twentieth, etc.)" This is *oral* work.

Purpose

To develop further the series idea and to provide practice in writing numerals.

Vocabulary

Before, after.

Materials

Classroom calendar.

Developmental Activity

Have the group look at the large classroom calendar. **How would you like to play a new game? "What Comes Before . . . ?" is its name. I'm thinking of the number that comes before ______. What is it? It is in this row.** Point to one row of the calendar. The child giving the correct answer asks the next question.

Procedure

Only the numerals that pupils have learned to write are used in this lesson. The largest numeral is 6.

Open your books to page 73.

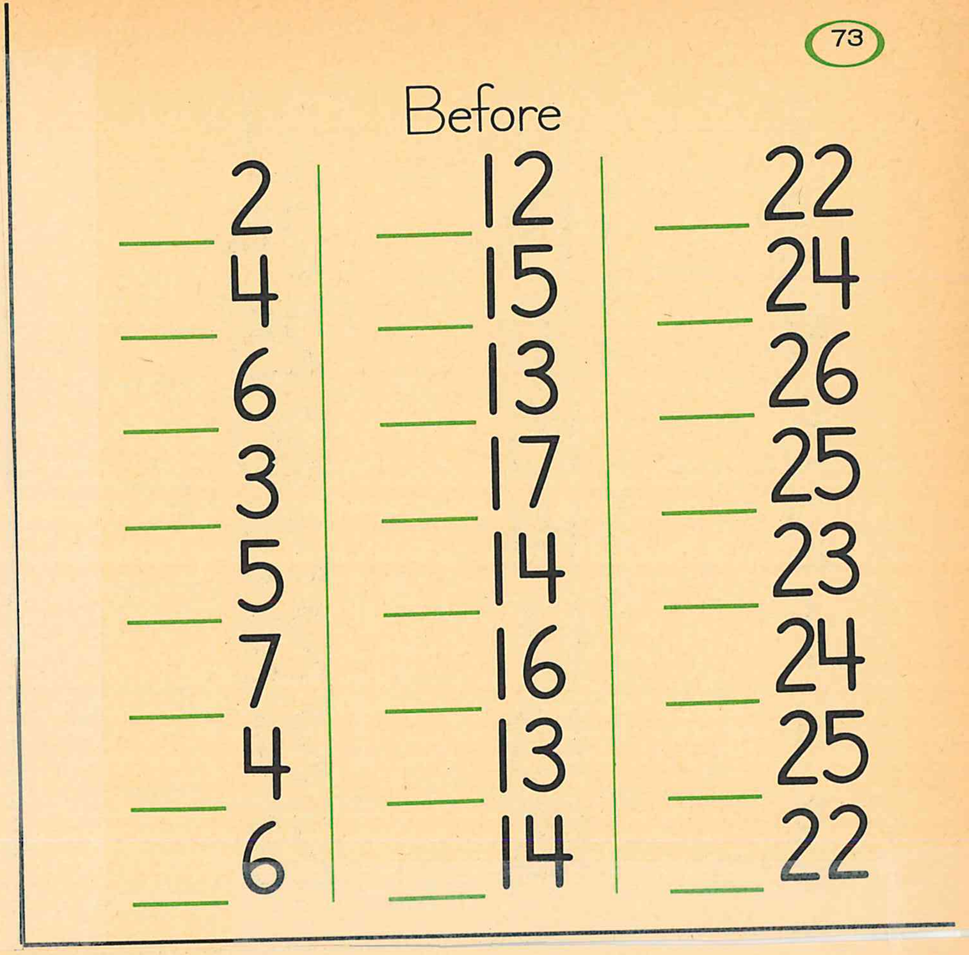
What is the word at the top of the page? [before] **Let's all softly say it together.**

Now look at the first row. What numeral should come before the 2? [1] **Write a numeral 1 on the line. Can you do the others? Use the calendar for help.**

Watch for good writing position. Circulate to check on how the pupils are holding their pencils and help them with details of numeral writing, etc.

Extended Activity

Send this page home for Mother and Dad to see. Suggest that each pupil teach "What Comes Before . . . ?" to his parents.

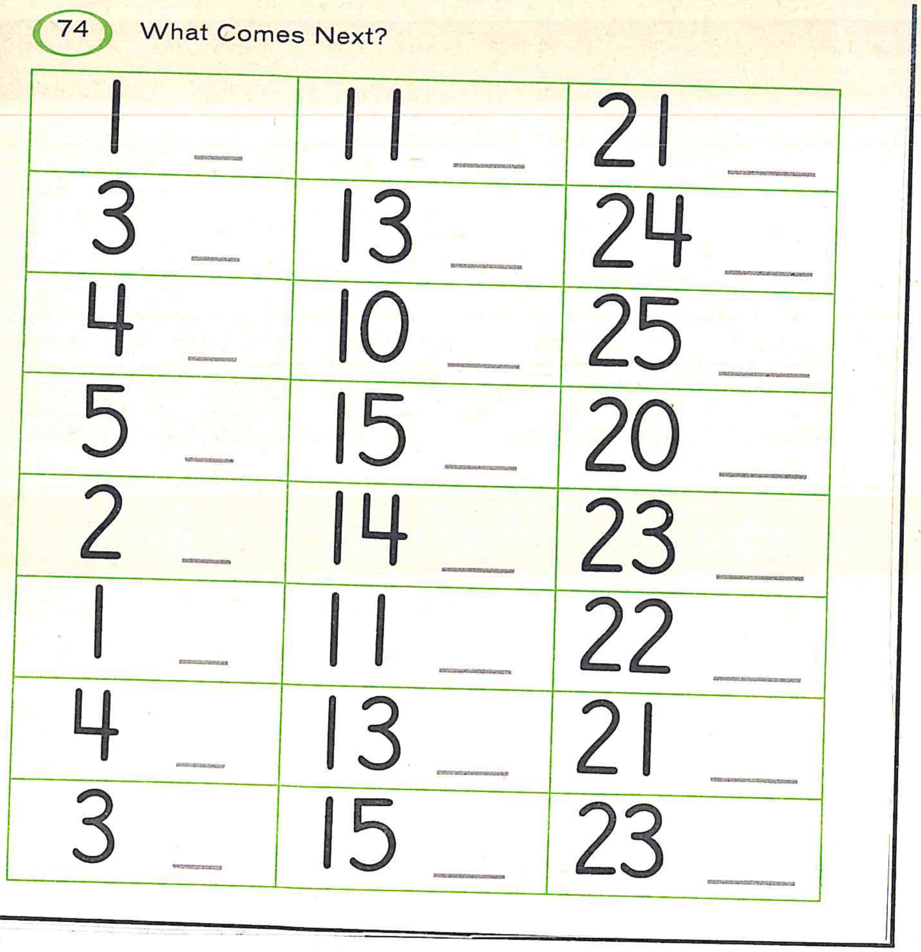


Before

____ 2
____ 4
____ 6
____ 3
____ 5
____ 7
____ 4
____ 6

____ 12
____ 15
____ 13
____ 17
____ 14
____ 16
____ 13
____ 14

____ 22
____ 24
____ 26
____ 25
____ 23
____ 24
____ 25
____ 22



74 What Comes Next?

1 ___	11 ___	21 ___
3 ___	13 ___	24 ___
4 ___	10 ___	25 ___
5 ___	15 ___	20 ___
2 ___	14 ___	23 ___
1 ___	11 ___	22 ___
4 ___	13 ___	21 ___
3 ___	15 ___	23 ___

74

Purpose

To extend the series idea and the writing of numerals through the 20's.

Only the numerals that pupils have learned to write are used in this lesson. The largest numeral is 6.

Vocabulary

Next, calendar.

Materials

Large classroom calendar.

Developmental Activity

Boys and girls, do you remember how to find what numeral comes next on the calendar?

Have several children go to the calendar, one at a time. Have them point to the numeral that comes next as you read this series: 5—11—14—21—25—12—23—13.

Procedure

Now open your books to page 74.

Who can read the words at the top of the page? Make this informal. Then have the group read them together.

Do you think we can write the numeral that comes next? Look at the first row. The first numeral is easy; it is ———. [1] **What numeral should we write after it?** [2]

Do the rest of the page. Write neatly. Are we sitting up tall? Use the calendar to help if you wish.

Extended Activity

Have the pupils take this page home and show it to Mother and Dad. Ask them to teach Mother and Dad how to play "What Comes Next?"

Purpose

To become aware of the vocabulary of weight and to demonstrate the use of one kind of scales.

Vocabulary

Heavy, heavier, heaviest, light, lighter, lightest, weigh, weight, more than, less than, part of, pound.

Materials

Baby scales, scales from nurse's office.

Developmental Activity

An interesting firsthand experience can be provided if some mother might agree to bring a small baby into the classroom. If baby scales can be provided, the children will enjoy seeing how the baby is weighed.

Procedure

Open your books to page 75. Look at the picture.

If the class has had the above experience: **Our lesson is like the one we had when Mrs. __________ brought __________ to school.**

If it is not possible to see a real baby weighed: **How many of you have ever seen Mother weigh your baby brother or sister?** Allow time for discussion.

What shall we call the baby in the picture? Last week this baby weighed 10 pounds. Can you tell from the scales how much he weighs now? [11 pounds] **Is that more than he weighed last week?** [yes] **How much more?** [1 pound] **Put an X on what he weighs now.**

The lower bar on the baby scales measures weight in pounds. It looks like this. Show a paper bar scales. **The bar on the scales in the nurse's room is also like this.**

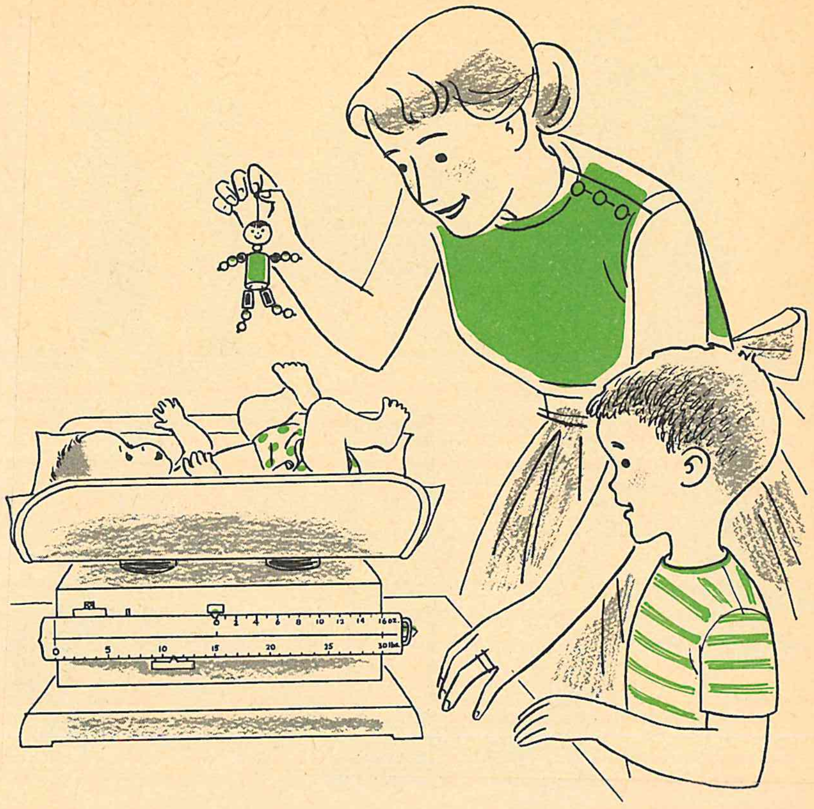
Extended Activity

Bring in a bathroom scales. Weigh light objects, weigh heavy objects.

Make plans with the school nurse to weigh the children.

Begin a record showing the weight of each child. Keep this record for a later comparison with the child's present weight.

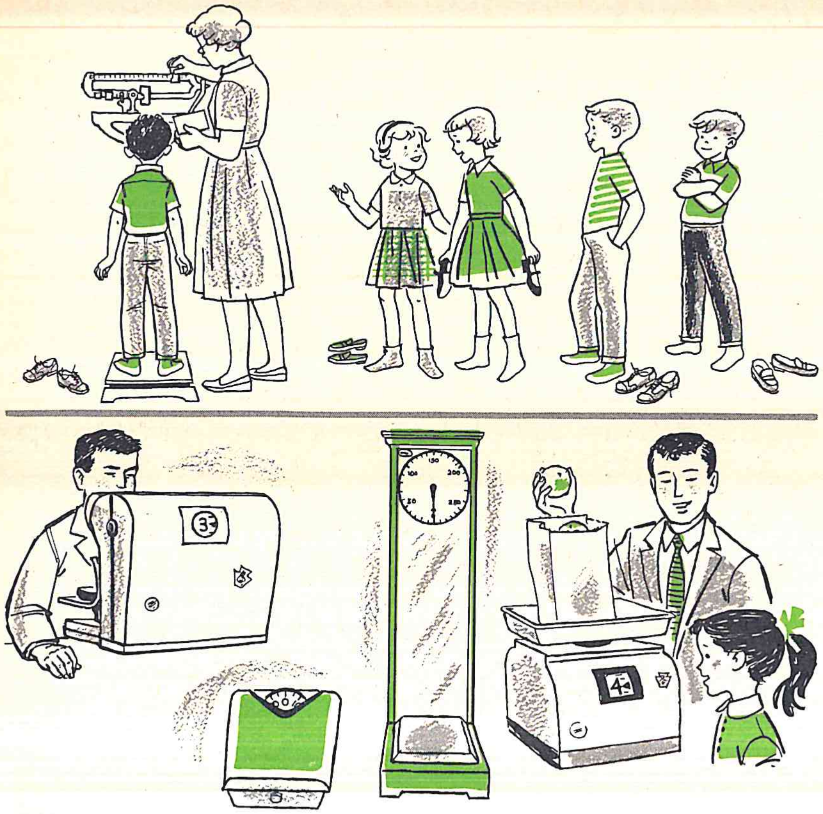
CHILD'S NAME	FALL	SPRING
	Oct.	May
George	42	45
(Continue)		



In the spring with the teacher's guidance, the children may make up arithmetic problems from this information. These may be taken home.

Approximation may be taught. Use such expressions as: "almost," "a little more than 45," "Which do you think is more, 42 or 45?" "Which do you think is less?"

76 Many Kinds of Scales



76

Purpose

To develop an awareness of scales and to become aware that different types of scales are used to weigh different objects.

Materials

Nurse's scales, bathroom scales, spring scales, a paper model of a scale bar or bar scale, a box of crayons for each child.

Developmental Activity

This page may be presented in connection with the children's being weighed for the first time in the fall. Ask the nurse to demonstrate the use of the scales before the first weighing.

Take the children to visit the cafeteria cook to see how she uses scales. Also, visit a supermarket to see the variety of scales being used.

Make a paper bar scale or draw an enlarged bar scale on the chalkboard.

A bulletin-board display showing the many kinds of scales may be prepared by the children.

Procedure

Open your books to page 76.

Look at the top of the page. Who would like to suggest a name for this little boy? Why does he have his shoes off? Where is he standing? What is happening to him? Has anything like this ever happened to you?

How many children are waiting their turn? [4] **How many boys?** [2] **How many girls?** [2] **Put a red X on the first child waiting, a green X on the second child, a blue X on the third, and a yellow X on the fourth child.**

Who can find the scales in which you put in a penny before you are weighed? Put an X on the slot where you put in the penny. Where have you seen scales like this?

Now locate the scales found at the meat market. How much does the meat weigh? [3 pounds] **Draw a ring around the numeral that tells you.**

Point to the scales you might see in a self-service market. The pointer or indicator is pointing to what numeral? [4]

Mary and her daddy are buying ______ pounds of apples.

Do you see scales on this page like those you have at home? [yes, bathroom scales] **Put a ring around each of the scales that is used to weigh the same thing as bathroom scales.**

Extended Activity

Bring bathroom scales from home. Let the children, working in small groups, weigh each other. Have each child record his name and his weight on the chart.

After the list of children's names and weights is completed, discuss the information on it using such expressions as: "more than," "less than," "about as much as," "the same as." Avoid embarrassing personal comparisons.

Bring spring scales to school and weigh large and small packages.

Enjoy *The Growing Story,* by Ruth Krauss (Harper & Bros., N.Y., 1947).

Purpose

To provide a review check on the 15 addition facts through the 6-group.

Procedure

Open your books to page 77.

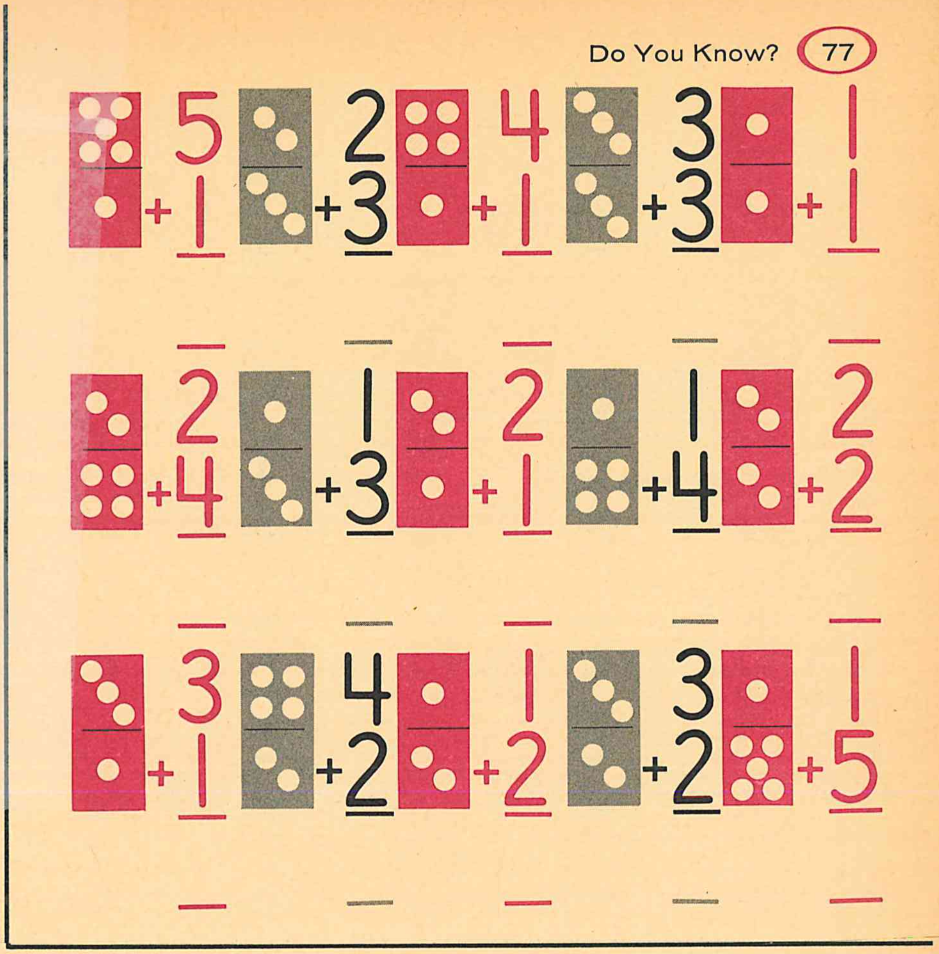
Put the first example on the chalkboard. Work it with the group. Then have the group finish the page.

A scattergram like that shown below may be used to plot the results and to provide a basis for individual practice and future review.

	2	3		4			5				6				
NAME	1 +1	1 +2	2 +1	1 +3	3 +1	2 +2	1 +4	4 +1	2 +3	3 +2	1 +5	5 +1	2 +4	4 +2	3 +3

Extended Activity

Have those who miss some of the examples take out their counters and show all the addition combinations for each of the 4-, 5-, and 6-groups. As they make a pattern, they should say the number sentence for it—for example, 0 0 0 0   0 0, say, "Four and two are six."



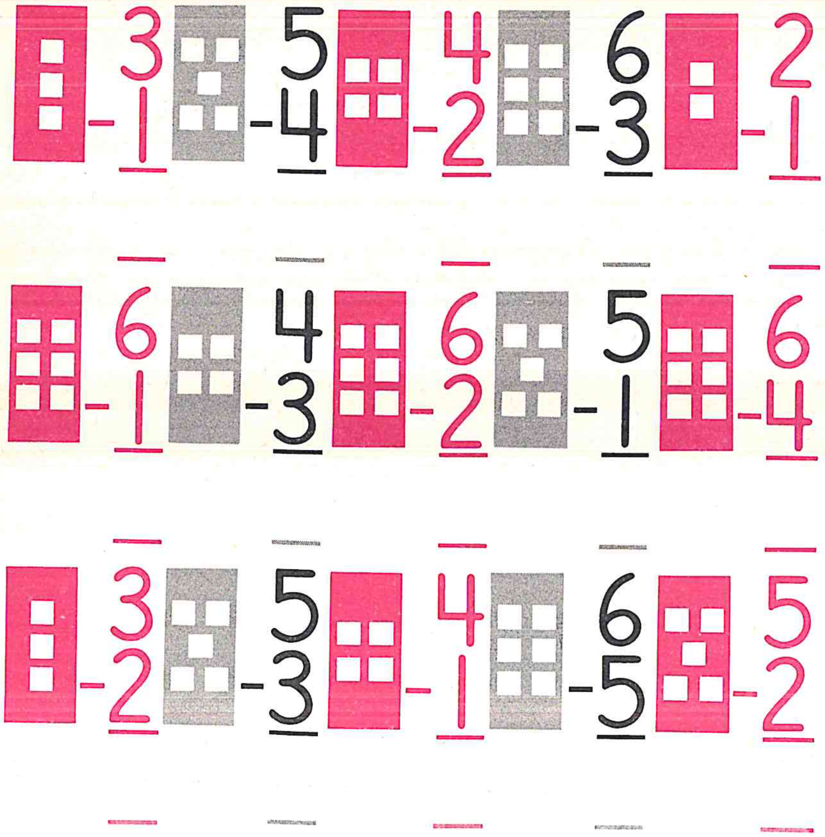
Do You Know? 77

5 +1 ___
2 +3 ___
4 +1 ___
3 +3 ___
1 +1 ___

2 +4 ___
1 +3 ___
2 +1 ___
1 +4 ___
2 +2 ___

3 +1 ___
4 +2 ___
1 +2 ___
3 +2 ___
1 +5 ___

78 Do You Know?



$3 - 1$ ___ $5 - 4$ ___ $4 - 2$ ___ $6 - 3$ ___ $2 - 1$ ___

$6 - 1$ ___ $4 - 3$ ___ $6 - 2$ ___ $5 - 1$ ___ $6 - 4$ ___

$3 - 2$ ___ $5 - 3$ ___ $4 - 1$ ___ $6 - 5$ ___ $5 - 2$ ___

	2	3		4			5				6				
NAME	2 -1	3 -2	3 -1	4 -3	4 -2	4 -1	5 -4	5 -3	5 -2	5 -1	6 -5	6 -4	6 -3	6 -2	6 -1

78

Purpose

To provide a review check of the 15 subtraction facts through the 6-group.

Procedure

Let's open our books to page 78.

Put the first example on the chalkboard. Work it with the group. Then have the group finish the page.

A scattergram like that shown may be used to plot results and to provide a basis for individual practice and future review.

Extended Activity

Divide the class into small groups according to the number and kind of examples missed. Have them practice subtraction with their counters. For example, take 6 counters and create the five possible subtraction facts for 6, as 0 0 0 0 0 ~~0~~. For each pattern have them say the appropriate number sentence, as "Six take away one leaves five." Repeat for each fact in the 4-, 5-, and 6-groups.

Purpose

To develop the idea of zero as *a starting point.*

Vocabulary

Zero, scales, weight, dial, pound.

Materials

A household scales and a set of 1 pound, 2 pound, 3 pound, and 5 pound weights.

Developmental Activity

Review the idea that we measure weight in pounds.

Place the household scales in front of the group. **What do we use a scales like this for?** Discuss. **Can you read the numerals on the front? Where does the arrow or dial point?** [to zero] Put a 1 pound weight on the scale. **Now where does the dial point?** [to 1]

What happens when we take the weight off? [Dial goes back to zero.] **Let's put a 2 pound weight on the scales. What happens? What happens when we take the 2 pound weight off?** [Dial goes back to zero.] Repeat with the other weights. **What happens to the scales each time we take the weights off?** [Dial goes back to zero.] **Boys and girl, zero is a starting point when we weigh things.**

Procedure

Open your books to page 79.

Let's see how zero is used on the speedometer of an automobile. Do you know what a speedometer tells? [How fast the car is going.] Discuss the pictures. **Is either speedometer like the one in your family car?**

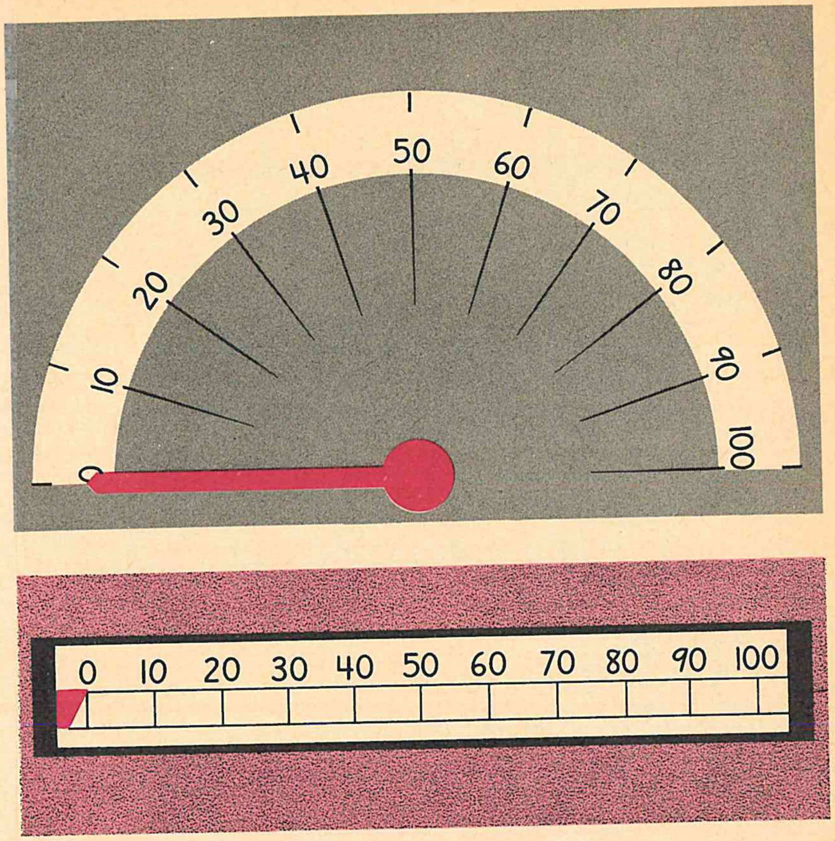
Look at the top speedometer. Where does the dial point? [to 0] **When does the speedometer look like this?** [when the car is stopped, in the garage, standing still, etc.]

Informally have the group count aloud by 10's to 100: 0–10–20–30–40–50–60–70–80–90–100. **Can anyone read the numerals on the top speedometer?**

> Because of their interest in automobiles, some children will know how to read the numerals on the speedometer.

Encourage individuals to count by 10's and to point to each numeral as they count.

This should be kept at an informal level.



Discuss speeds in appropriate terms: "What is fast?" "What is slow?" "What is safe?"

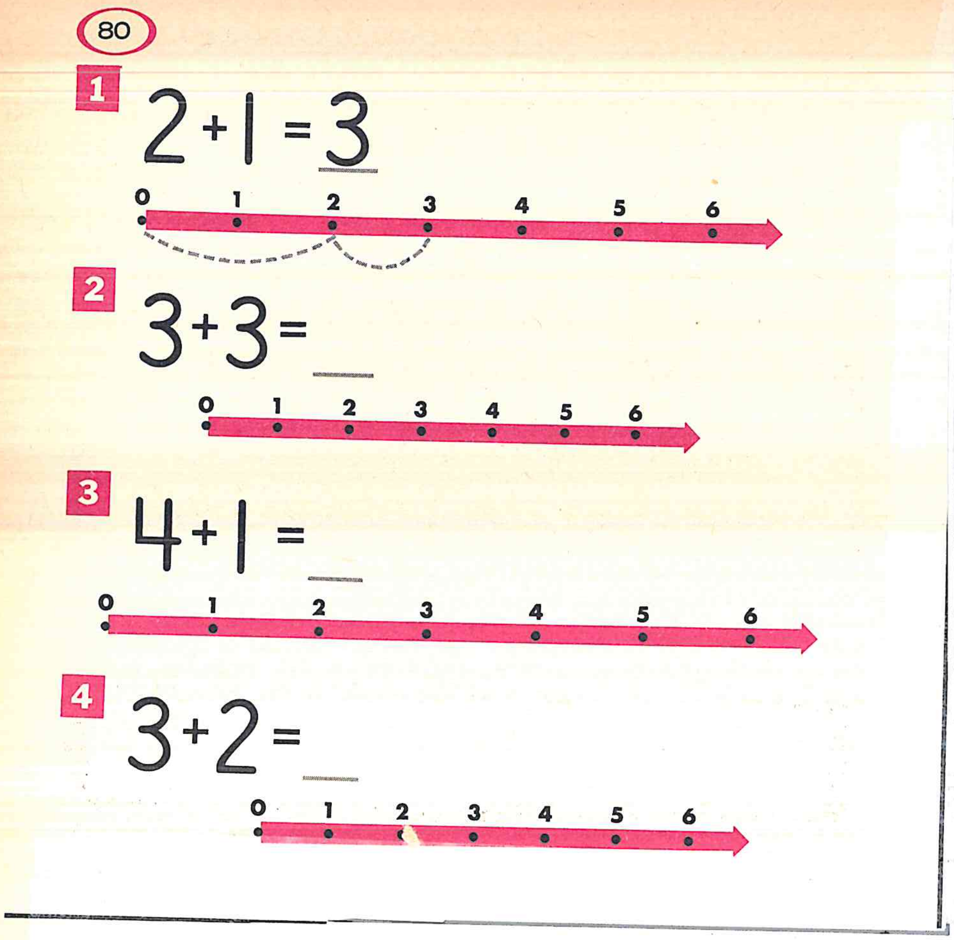
Look at the second speedometer. Discuss as above.

Extended Activity

Have pairs of children take turns using the weight scales to "add" weights to see if:

2 + 1 = 3	and	1 + 2 = 3
5 + 1 = 6		1 + 5 = 6
3 + 1 = 4		1 + 3 = 4

Put these addition combinations (without answers) on several 5″ x 8″ cards. Use them from time to time for class and individual practice.



80

1 2+1=3

0 1 2 3 4 5 6

2 3+3=

0 1 2 3 4 5 6

3 4+1=

0 1 2 3 4 5 6

4 3+2=

0 1 2 3 4 5 6

Purpose

To introduce the number line. To use a number line to find answers.

Vocabulary

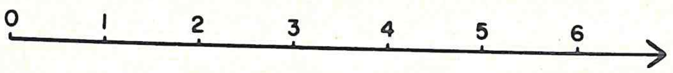
Number line.

Materials

Chalkboard.

Developmental Activity

Put a number line extending from 0 through 6 on the chalkboard. The model shown should be followed at first. Make the line 40″ long with numerals at 6″ intervals.



Some teachers put the number line on the chalkboard with wax crayon so that it can be erased over and used again.

Note that the number line, at this grade level, always starts with zero.

This representation of a number line is effective for the introductory work with number lines. Other books in the Prentice-Hall Arithmetic series will make use of variant representations of number lines.

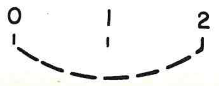
Procedure

Open your books to page 80.

Boys and girls, today we are going to learn about something new, the number line. We read it the way we read the scales. Where do we start? [at 0] **How long is our number line?** Work with the children to develop an awareness that this number line is 6 units or spaces long.

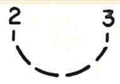
What is the largest number on the line? [6] **What is the smallest?** [0] **the next smallest?** [1] **the next to the largest?** [5] **The larger numbers are towards the** ________. [right end of the line] **The smaller numbers are towards the** ________. [left end of the line]

This is how we show the answer on a number line. Demonstrate this on the chalkboard number line. **Start at 0 and draw a line like this:**



for the 2. It shows 2 spaces or 2 units.

Then show the 1 by drawing another line like this:



It shows 1 space or 1 unit added on to the 2 units. The number line now shows that 2 + 1 = 3.

Discuss examples 2, 3, and 4. **Do you think you can finish 2, 3, and 4 to show the answers to the number sentences? Let's try. Are we sitting up tall?**

Circulate and give help as needed.

Extended Activity

Pass out 9″ x 12″ worksheets with four number lines, 6 units long, on them. Have the pupils find the answers to these four number sentences:

2 + 3 = ______

5 + 1 = ______

1 + 4 = ______

2 + 2 = ______

Purpose

To use a number line to find answers.

Vocabulary

Larger, more than, more.

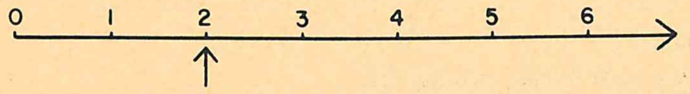
Materials

A chalkboard number line.

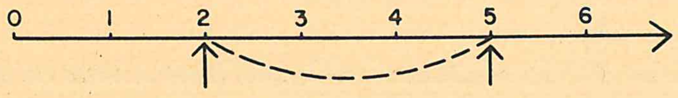
Developmental Activity

Boys and girls, in our last lesson we used a number line to help us see the answers to some number sentences. Today we are going to use a number line to show our answers to some questions about numbers.

Which is larger, 2 or 5? [5] **How many larger? The number line will help us to see exactly how many more or how many larger 5 is than 2. This is how to do it. First find the 2 point on the number line, like this.** Demonstrate on the chalkboard number line.



Then draw a line like this to the 5 point:



The 5 point is three spaces or three points to the right of the 2 point. On a number line as we go to the right, the numbers get larger. Which is larger, 2 or 5? [5] **How many larger?** [3]

Have individual pupils take turns demonstrating the following examples on the chalkboard number line:

Which is larger, 1 or 4? How many larger?
Which is larger, 3 or 6? How many larger?
Which is larger, 2 or 4? How many larger?
Which is larger, 4 or 6? How many larger?

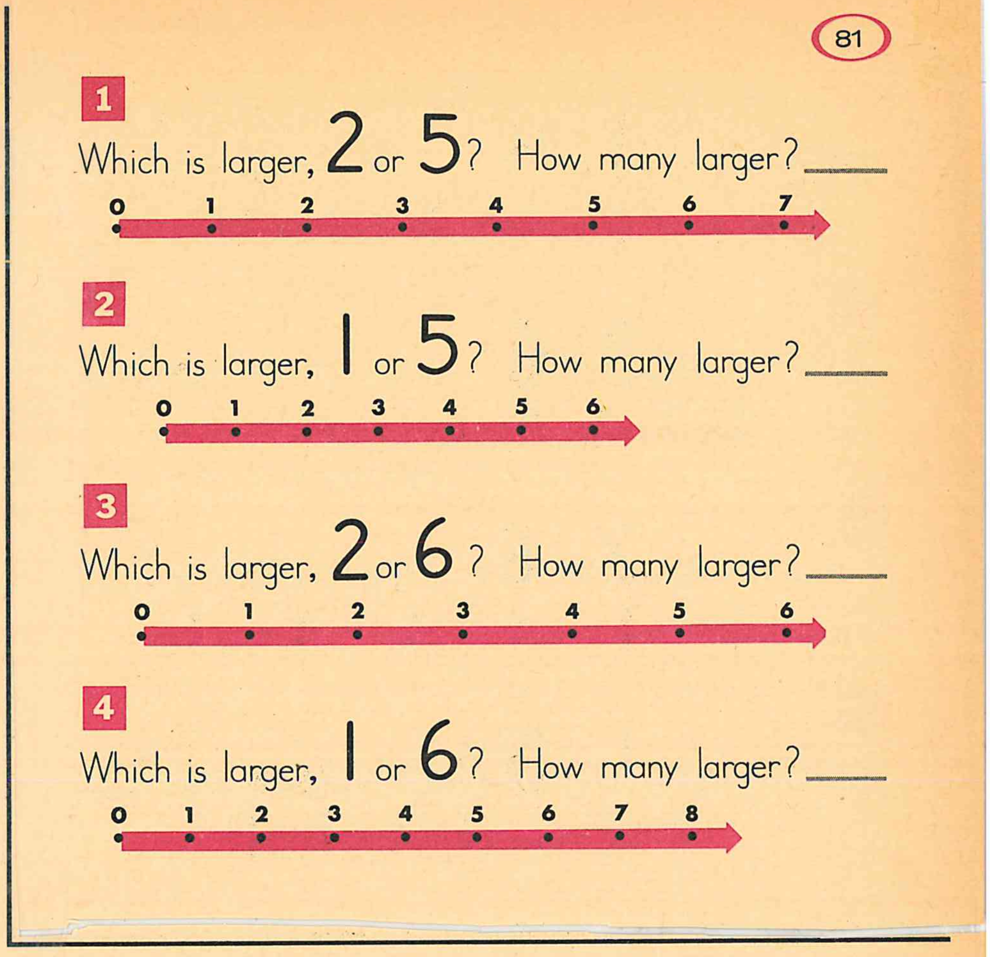
Procedure

Open your books to page 81.

Who can read the first sentence? (Give help when necessary.)

Find the answer on the number line the way we did on the chalkboard. Circulate and give help as needed.

Complete the page in the same way.



81

1 Which is larger, 2 or 5? How many larger? ____

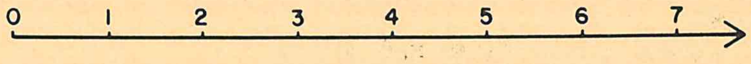
2 Which is larger, 1 or 5? How many larger? ____

3 Which is larger, 2 or 6? How many larger? ____

4 Which is larger, 1 or 6? How many larger? ____

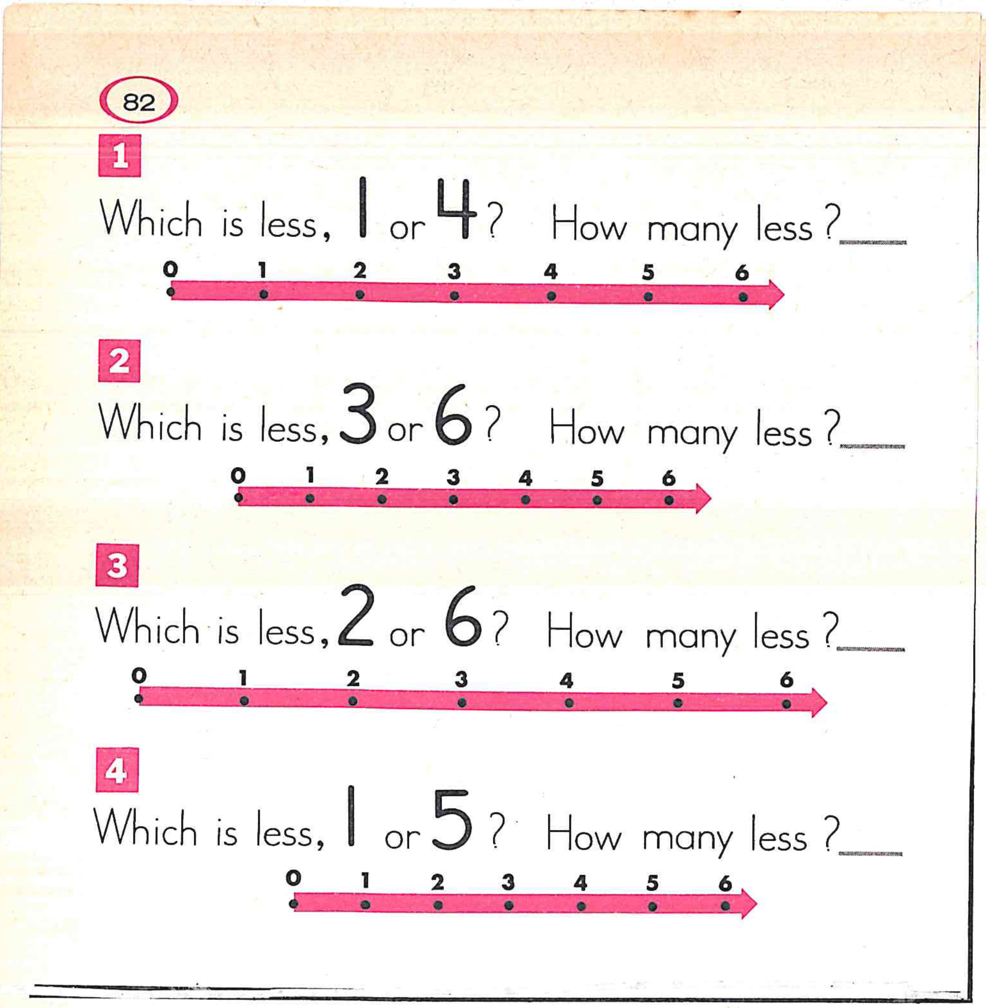
Extended Activity

Pass out 9″ x 12″ worksheets with four number lines on them similar to this:



Have the pupils use the number lines to find the answers to these four questions:

1. Which is larger, 3 or 6? How many larger?
2. Which is larger, 4 or 5? How many larger?
3. Which is larger, 4 or 6? How many larger?
4. Which is larger, 3 or 5? How many larger?



82

1

Which is less, 1 or 4? How many less? ___

2

Which is less, 3 or 6? How many less? ___

3

Which is less, 2 or 6? How many less? ___

4

Which is less, 1 or 5? How many less? ___

Purpose

To use a number line to find answers.

Vocabulary

Less, less than, how many less.

Materials

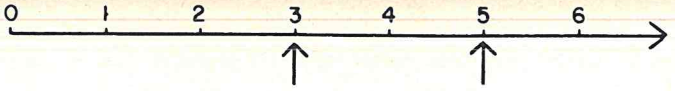
A chalkboard number line.

Developmental Activity

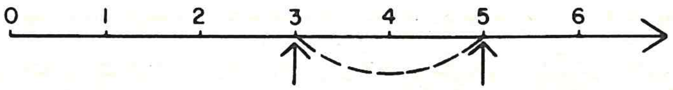
Boys and girls, today we are going to work with some new questions about numbers.

Which is less, 3 or 5? [3] **How many less?** [2] **This is how we can show it on a number line.**

First, mark the 3 and 5 points on the number line. Demonstrate on the chalkboard.



Now draw a line from the 5 point back to the 3 point like this:



The number line shows that 3 is 2 less than 5. Some pupils may say 5 is 2 more than 3. If so, simply comment, "That is another way to say it," and go on with the lesson.

Shall we take turns working some more examples? Have individual pupils use the chalkboard number line to show solutions for:

Which is less, 4 or 7? How many less?
Which is less, 2 or 5? How many less?
Which is less, 3 or 6? How many less?
Which is less, 5 or 7? How many less?
Which is less, 4 or 6? How many less?

Procedure

Open your books to page 82.

Who can read the first sentence? Give help as necessary.

Find the answers on the number line the way we did on the chalkboard. Circulate and give help as needed.

Extended Activity

Pass out 9″ x 12″ worksheets with four number lines on them. Have the pupils use the number lines to find the answers to these four questions:

Which is less, 2 or 5? How many less?
Which is less, 5 or 7? How many less?
Which is less, 3 or 6? How many less?
Which is less, 4 or 7? How many less?

Purpose

To test the 15 addition facts through 6 without the use of visualization aids.

Materials

A set of addition flash cards.

Developmental Activity

Quickly run through the 15 facts using Number Flash cards.

Procedure

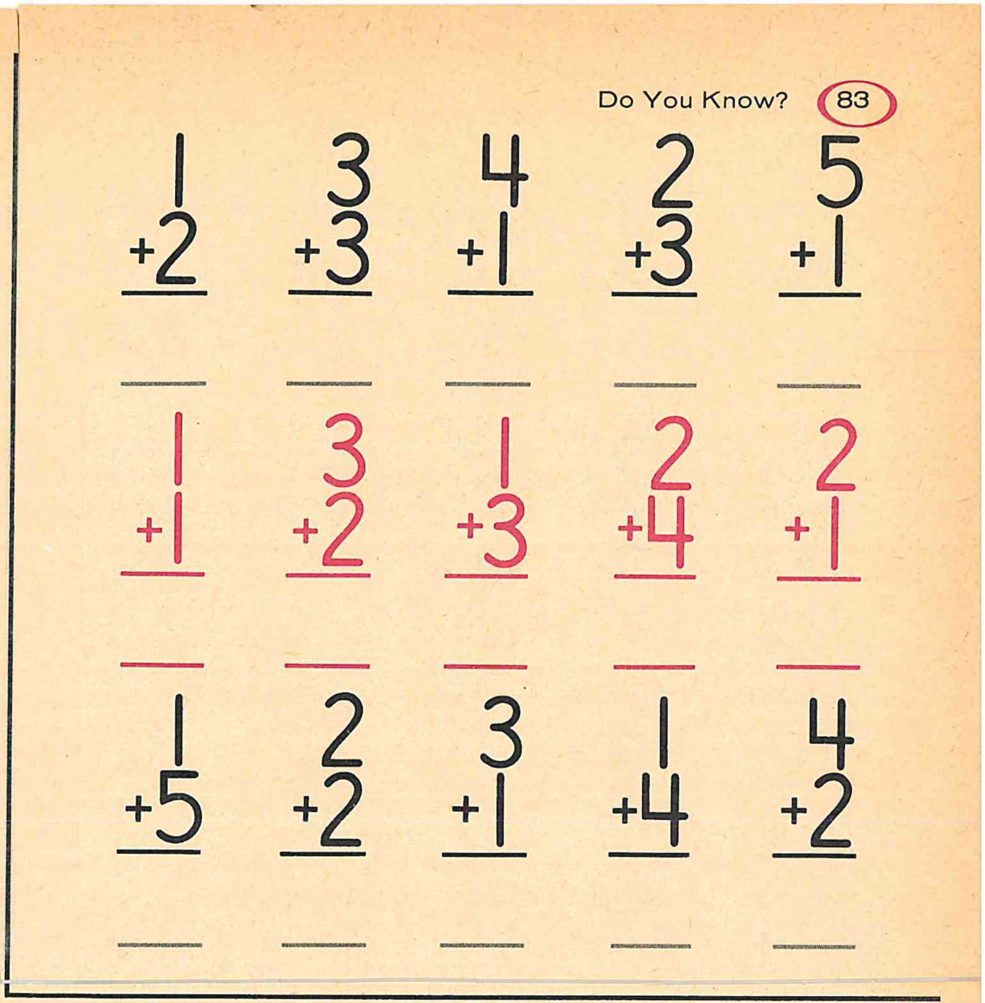
Open your books to page 83.

What is the answer to the first example? [3] **Write it on the line. Now write the answers to the rest of the examples. Are you sitting up tall?**

Use a different colored pencil to record the results on the scattergram. See page 77.

Extended Activity

Have the children take these papers home to share with their parents. Encourage them to show their parents how well they know the addition facts. Also, have the children take their set of flash cards home and practice them with their parents' help.

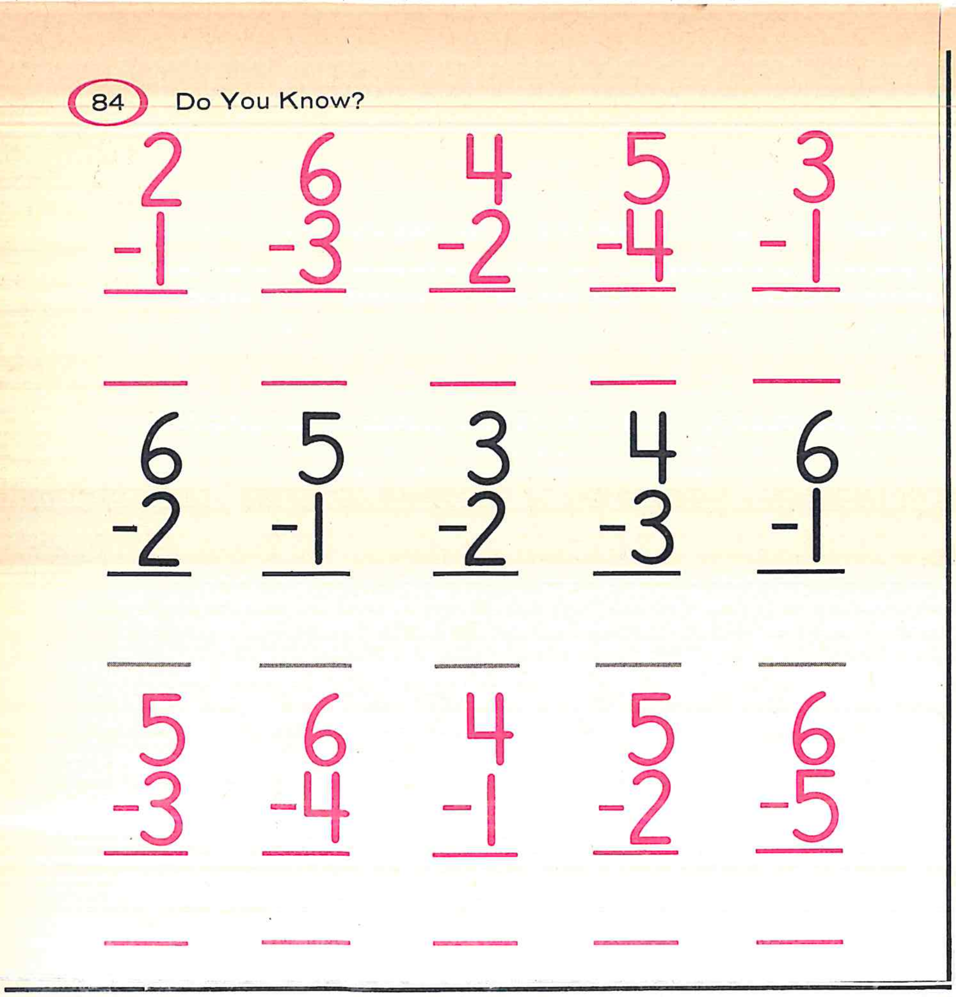


Do You Know? 83

$$\begin{array}{rrrrr} 1 & 3 & 4 & 2 & 5 \\ +2 & +3 & +1 & +3 & +1 \\ \hline \end{array}$$

$$\begin{array}{rrrrr} 1 & 3 & 1 & 2 & 2 \\ +1 & +2 & +3 & +4 & +1 \\ \hline \end{array}$$

$$\begin{array}{rrrrr} 1 & 2 & 3 & 1 & 4 \\ +5 & +2 & +1 & +4 & +2 \\ \hline \end{array}$$



84 Do You Know?

2 -1	6 -3	4 -2	5 -4	3 -1
6 -2	5 -1	3 -2	4 -3	6 -1
5 -3	6 -4	4 -1	5 -2	6 -5

84

Purpose

To test the 15 subtraction facts through 6 without the use of visualization aids.

Materials

A set of subtraction flash cards.

Developmental Activity

Quickly run through the 15 subtraction Number Flash cards with the group.

Procedure

Open your books to page 84. What is the answer to the first example? [1] **Write it on the line. Now write the answers to the rest of the examples. Are you sitting up tall?**

Record the results on the scattergram. See page 78. Use a different colored pencil from that previously used.

Additional help can be given to those having difficulty with any of the combinations.

Extended Activity

Have the group take these pages home. Encourage them to show their parents how well they know the subtraction facts.

This might be a good time to send out a special parent bulletin indicating that the group has learned their addition and subtraction facts through 6, a total of 30 facts.

Have the children take home their subtraction flash cards to practice answering them with their parents.

Purpose

To review the ordinals through seventh, to use the calendar, to review shapes, and to see "seven-ness" through a discussion of "Kari's Cross-Country Trip." (See page v.)

> Many families relocate frequently so that the experience of leaving home, relatives, and friends to live in a new community is not an uncommon one. Therefore, many children will easily identify themselves with Kari's delightful experience of moving cross-country.

Vocabulary

Next, round, thin, narrow, tiny, halfway, first, second, third, fourth, fifth, sixth, seventh, calendar, weeks.

Materials

Assorted wrapped packages, a large calendar, and individual calendars. Crayons for each child. A set of 8 counters.

Developmental Activity

Wrap 7 boxes of assorted sizes and shapes. Have the children describe the shape of the boxes—rectangle, round, square, big, little (tiny). Have them tell what might go into the boxes.

Use a calendar to show how long a week is. Make use of the ordinals through seventh as a part of the discussion. Be aware of the groupings of 7 that can be seen on a calendar.

Procedure

What part of the story did you like best?

What was your favorite gift?

Do any of you have an aunt or special friend like Aunt Jo?

Has anything like this ever happened to you?

Do you think opening a gift each day was a good idea?

Put an X on Kari. Put an X on Aunt Jo. Put an X on Mother.

Put a red X on the biggest box. Put a black X on the tiny box.

Put yellow X's on the boxes shaped like rectangles.

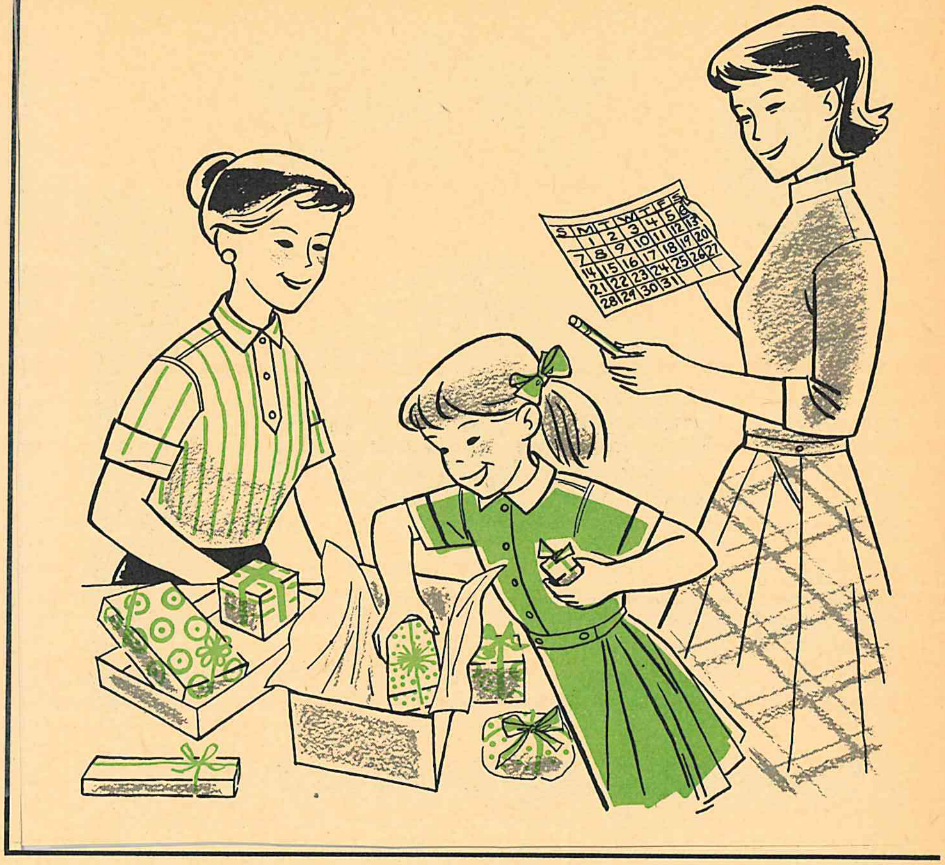
Put a blue X on the box shaped like a circle.

Put orange X's on all the square boxes.

On what day do you think the family left on their trip? Have the class decide. **How many days were they traveling?** [7] Have the children use counters to show how many days make a week.

Put a dot on the calendar to show the day Kari and the family started. How many more days would their trip take? [6] Illustrate this on the chalkboard. Write it: 1 + 6 = 7.

How many days were left for their trip on the second day? [5] Illustrate on the chalkboard: 2 + 5 = 7.



How many days were left on the third day? [4] **How many days had they been traveling?** [3] **How many days were left to go?** [4] Write it on the chalkboard: 3 + 4 = 7.

The next day how many days were left to go? [3] Write it: 4 + 3 = 7.

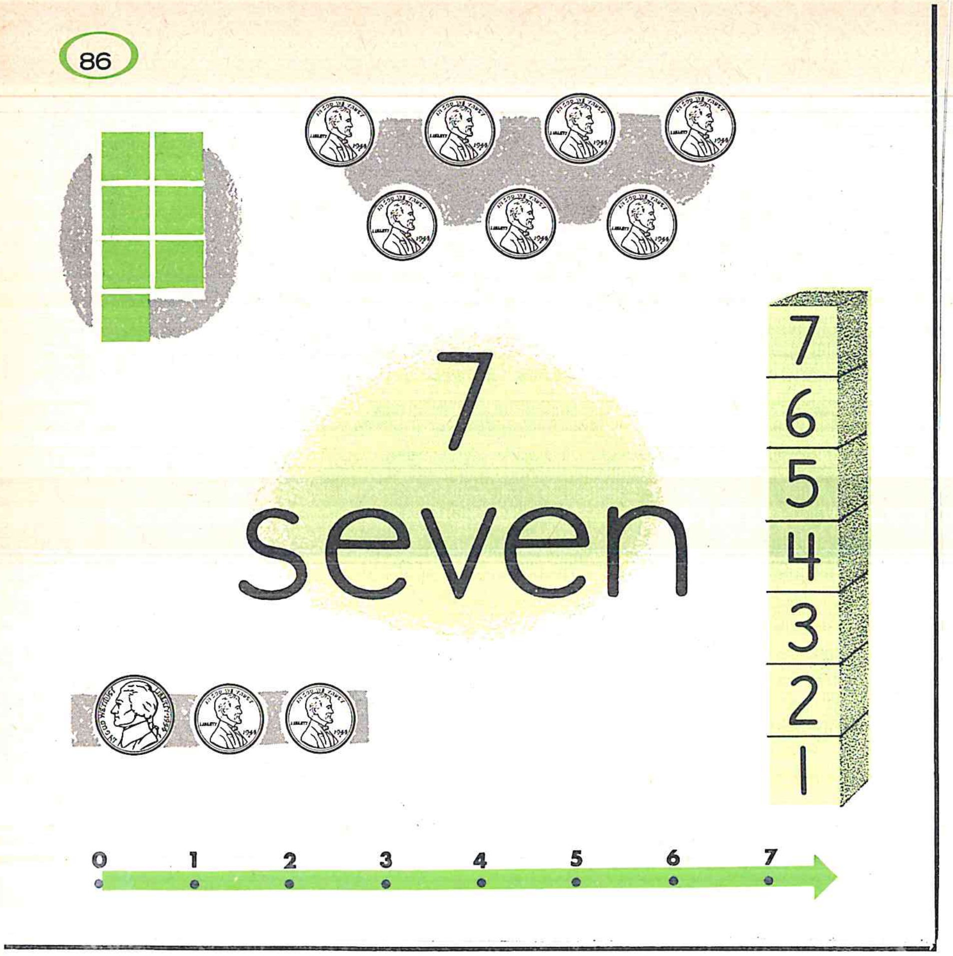
On the fifth day, how many days had Kari's family been traveling? [5] **How many days did they still have to travel?** [2] Write it: 5 + 2 = 7.

On the sixth day, how many days were marked on the calendar? [6] **How many days were not marked?** [1] Write it: 6 + 1 = 7.

What had happened to the boxes by the time the family arrived at their new home? [There were none left; not any.] **What numeral do we write for not any?** [0]

Extended Activity

Plan an experience of special interest to the children. Tell them about the event a week before it is to take place. Use a calendar to mark off the days as Kari did. Utilize this group experience for eliciting from the children combinations that relate to seven-ness.



86

Purpose

To develop the concept of seven as a group or set. To extend the understanding of the "one-by-one" structure of the number system—7 is 1 more than 6, 6 is 1 more than 5, etc., and 6 is 1 less than 7, 5 is 1 less than 6, etc.

Vocabulary

Number line, seven, more than, less than, right, left, bottom.

Materials

A chalkboard number line, 7 counters, and red and green crayons for each pupil.

> Research has shown that 6 is the largest group that many children see as a recognition unit. They see it only if the grouping is compact and well organized. Thus, any larger group is seen as being composed of subgroups. In the case of 7, the subgroups are 4 and 3; 3, 3, and 1, etc.

Developmental Activity

Have the class find groups of 7 in the room. Sets of books, chairs, scissors, and the like may be used. Have seven pupils form a group. **How many boys? How many girls?**

Have the children put 7 counters in a row. Then arrange them in sets of 2. One is left over. Write the number sentence on the chalkboard: $2 + 2 + 2 + 1 = 7$.

Work out other sets with 3, 4, 5, and 6. Write the number sentences on the chalkboard.

Discuss the various grouping patterns in 7.

Procedure

What is the numeral in the center of page 86? [7]

Where is the number word for 7? Frame it with your hands. Let's say it together—seven.

Now look at the stack of blocks on the right side of the page. How many blocks tall is it? Let's count them. Seven is how many more than 6? With your crayon make an X on the number 7 block. Put a ring around the number 6 block and a triangle on the number 5 block.

Put your finger on the 7 pennies. What kind of pattern do they make? Does anyone see them another way? With your crayon make a blue ring around 3 of the pennies. Now make a red ring around the other 4. Three and 4 make ______. [7]

Look at the squares on the left side of the page. What kind of pattern do they make? Discuss. The idea of even and odd may be brought out here. **The pattern does not come out even. The number 7 is not even; it is odd.** Discuss.

Now look at the other money on the page. What coins do we have? [1 nickel, 2 pennies] **How many pennies make a nickel?** [5] **How would we write a number sentence for this money?** [$5 + 2 = 7$] Develop this on the chalkboard. Explain that when we write number sentences we do not include money symbols or labels of any kind.

Look at the line at the bottom of the page. What is it called? [a number line] **There is a numeral above each of the points or dots on the line.** Have the class locate various points on the line. Use the model on the chalkboard for reference.

Find the 3 point. How many more points to get to 7? [4] **Let's count them on the line. Who can write the number sentence for this?** [$3 + 4 = 7$] Through this procedure develop all the addition facts for 7. For the subtraction facts, start at 7 and count back. Then write the number sentence.

Extended Activity

Provide a 24″ x 36″ piece of newsprint with a large numeral 7 in the center for each pair of pupils. Have them illustrate seven-

(Continued on next page.)

(Continued from page 86.)
ness with pictures from old magazines.

When these pages are evaluated by the children, many interesting grouping ideas should emerge.

87

Purpose

To develop facility in recognizing compact groups of objects without counting. To teach how to write the numeral 7.

Materials

A set of counters for each pupil. A flannel board.

Developmental Activity

Put a set of 7 objects on the flannel board, in a four-three pattern. Have the group arrange their sets of counters in the same pattern on their table or desk tops.

How is this 7 grouped? Discuss. **Who can make another 7-pattern?** Discuss. Let pupils take turns showing a different 7-pattern on the flannel board. Have each pupil organize his own counters to show the new pattern.

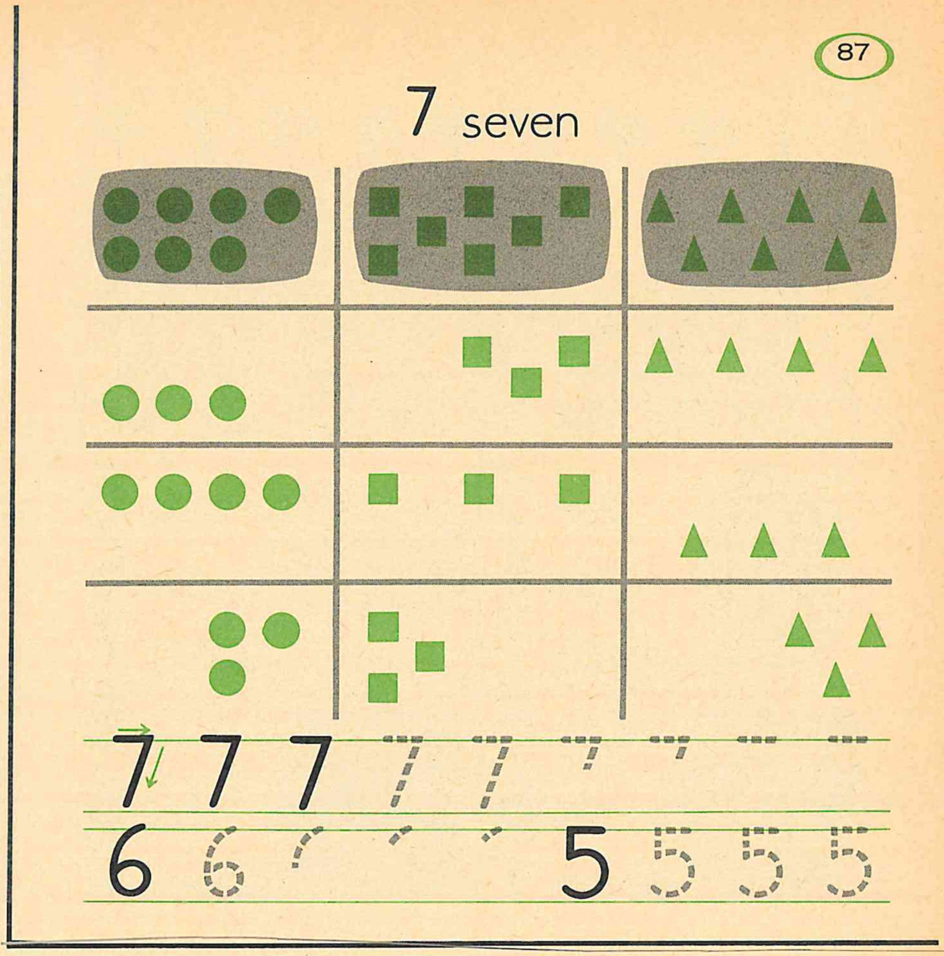
This discussion should bring out several things: (1) Two sets of counters can make 7. Can you find them? [5–2, 2–5, etc.] Have the children say the number sentence for each of these groupings as it is developed. (2) Three sets of counters can make 7. Can you find them? [3–3–1, etc.] Have the children say the number sentence for each of these groupings as it is developed. This discussion might extend to a demonstration that there can be as many as seven subgroups in 7.

> This type of number analysis provides excellent readiness for column addition and for later work with multiplication and division.

Procedure

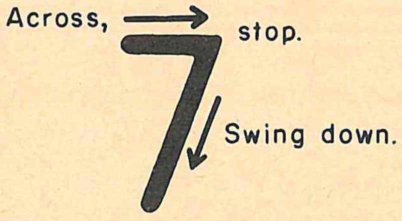
What is the numeral at the top of the page? [7] **And the number word that goes with it?** [seven] **This is a page about seven.**

How many dots are in the first box? [7] **How are they grouped? Do you think you can make the rest of the dot groups in the first column on the left** (point to it) **look like the top one? Take your crayon and finish the first one.** Help individuals as necessary.



Now look at the bottom of the page. Today we are going to learn how to write the numeral 7. Watch how I do it. Demonstrate this at the chalkboard. Say, "**Across, stop, swing down.**" Demonstrate several times.

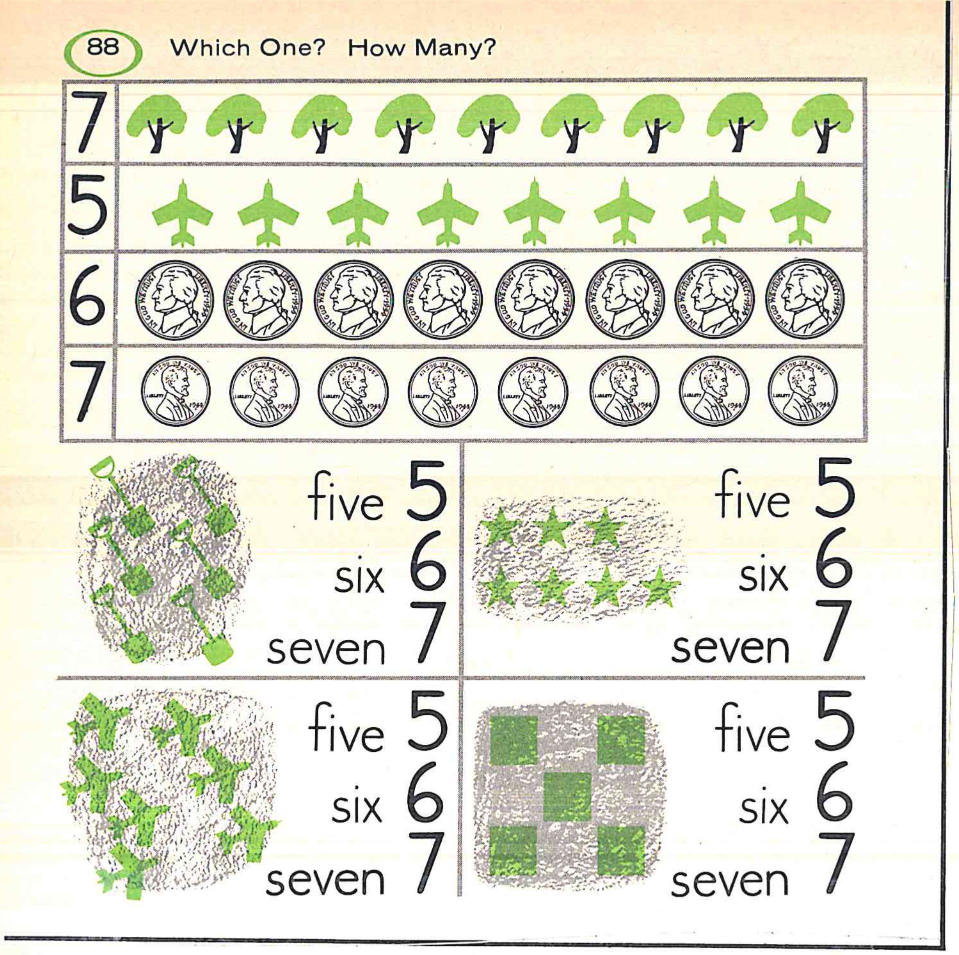
Have the group make 7's on their desk tops.



Now let's write the numerals at the bottom of the page. After you write them, finish all the 7-group pictures at the top of the page. Circulate and give help as needed.

Extended Activity

Make a set of dot patterns for 7 and add them to the Number Group game described on page 57.



88 Which One? How Many?

7
5
6
7

five 5
six 6
seven 7

five 5
six 6
seven 7

five 5
six 6
seven 7

five 5
six 6
seven 7

88

Purpose

To review the idea of seventh and to develop further the subgroup relationships in 7.

Vocabulary

Seventh.

Materials

A set of counters for each pupil. A flannel board.

Developmental Activity

Put a single horizontal row of 7 objects on the flannel board. **Which one is fifth?** Have pupils respond quickly. **sixth? seventh?**

Put the word *seven* on the chalkboard. **Seventh is seven with th on the end.**

Now have each pupil put 7 counters in front of him on his table or desk. **Line up your counters. Which is first?** Have pupils point. **Which is second? third? fourth? fifth? sixth? seventh?** Scramble the order of presentation, watching to see that each pupil points to the correct counter.

Next have the pupils discover how many ordered patterns or groupings for 7 they can make with their counters. 4 and 3, 5 and 2, 6 and 1 should be shown by each pupil with his counters:

0 0 0 0   0 0 0 0 0   0 0 0 0 0 0
0 0 0   0 0   0

What pair of addition facts can be made with each of these groupings? We need a number sentence for each one. Write the number sentences on the board as children list them:

4 + 3 = 7
3 + 4 = 7

5 + 2 = 7
2 + 5 = 7

6 + 1 = 7
1 + 6 = 7

The important part of this lesson is the informal exploration with objects of all the paired additions for 7.

Then have the group find sets of three subgroups for 7. **Put your 7 counters in a row. Now make a 3-group, a 2-group, and another 2-group. How can we write this number sentence?** [3 + 2 + 2 = 7]

Make five more number sentences with three little groups or subgroups in 7. Find them with your counters first. There are many correct solutions:

5 + 1 + 1 = 7
1 + 1 + 5 = 7
1 + 5 + 1 = 7

2 + 4 + 1 = 7
4 + 2 + 1 = 7
2 + 1 + 4 = 7
1 + 2 + 4 = 7
1 + 4 + 2 = 7
4 + 1 + 2 = 7

3 + 2 + 2 = 7
2 + 3 + 2 = 7
2 + 2 + 3 = 7

Procedure

Open your books to page 88. There are 2 things to do on this page.

On the first part, look at the numeral at the front of each row and put an X on the object or thing in that place in the row. Let's do the first row together. Which tree should you put an X on? [seventh tree or number 7 tree]

On the second part of the page, draw a ring around the number word and numeral that tell how many are in the group next to them.

Work the page. Are we sitting up tall?

Extended Activity

Keep this page in each pupil's folder.

Purpose

To develop the number sentence about 7 and to provide an opportunity for working with verbal problems.

Vocabulary

Top, how many, all together, how many left, bottom.

Materials

Flannel board, felt figures of snowmen, snowballs, children, geese, trees.

> Children who live in geographical areas that do not have a complete weather cycle should be given vicarious experiences through the use of films, pictures, or stories about winter fun.

Procedure

Open your books to page 89.

What do you think is a good name for this page? Listen to suggestions. **The writing at the top of the page says "Winter Fun." Have you ever had fun in the snow? Tell us about it.**

Let us look at the top of the page. How many children do you see? [7] **What are these children doing?** [playing in the snow] **How many are playing with their sleds?** [3] **How many are playing with the snowman?** [4] **How many children do you see all together?** [7] **Who can write the number sentence?** [3 + 4 = 7]

Do you see some things that the children made? [snowballs] **How do you see them?** [2 snowballs and 5 snowballs] **Put a ring around all the snowballs.**

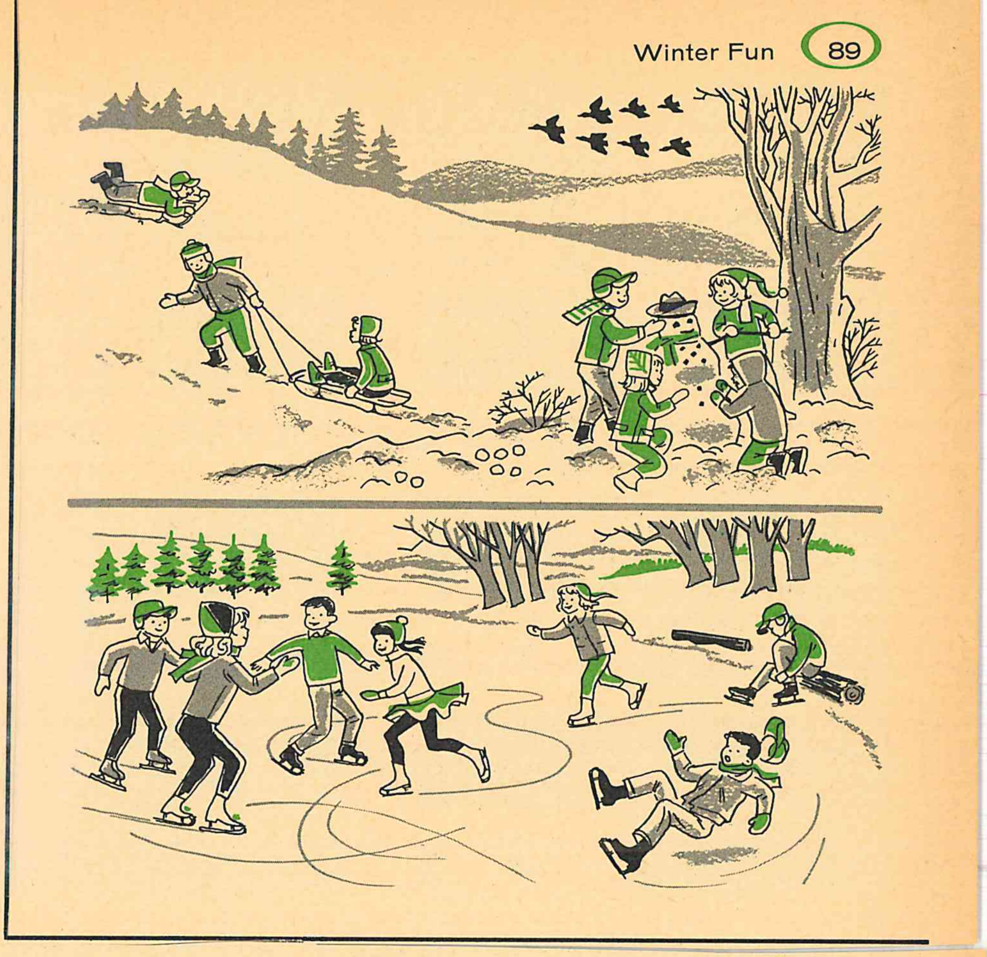
Someone has put buttons on the snowman. How do you see the buttons? [5 at the top and 2 at the bottom] **Who would like to come to the chalkboard and show how to write the number sentence?** [5 + 2 = 7] **Who can write it a different way?** [2 + 5 = 7]

Now look at the top of the picture. What do you see? [geese] **Geese often fly in a pattern like this one. It is a V-shaped pattern.** Put V on board: <. **Show me a V with your hands.**

Put an X on the leader of the geese. How many other geese are there? [6] **One goose and six geese make how many?** [7] **Put a ring around all 7 of them. Who can say the number sentence?** [1 and 6 are 7.] **Who can say it another way?** [6 and 1 are 7.]

Continue the discussion for those who need it, using the picture at the bottom of the page.

Develop this story as a flannel board lesson. Test the children's understandings by using flannel board objects. Encourage them to arrange birds, balls, snowmen, and children in different positions to develop seven-ness.

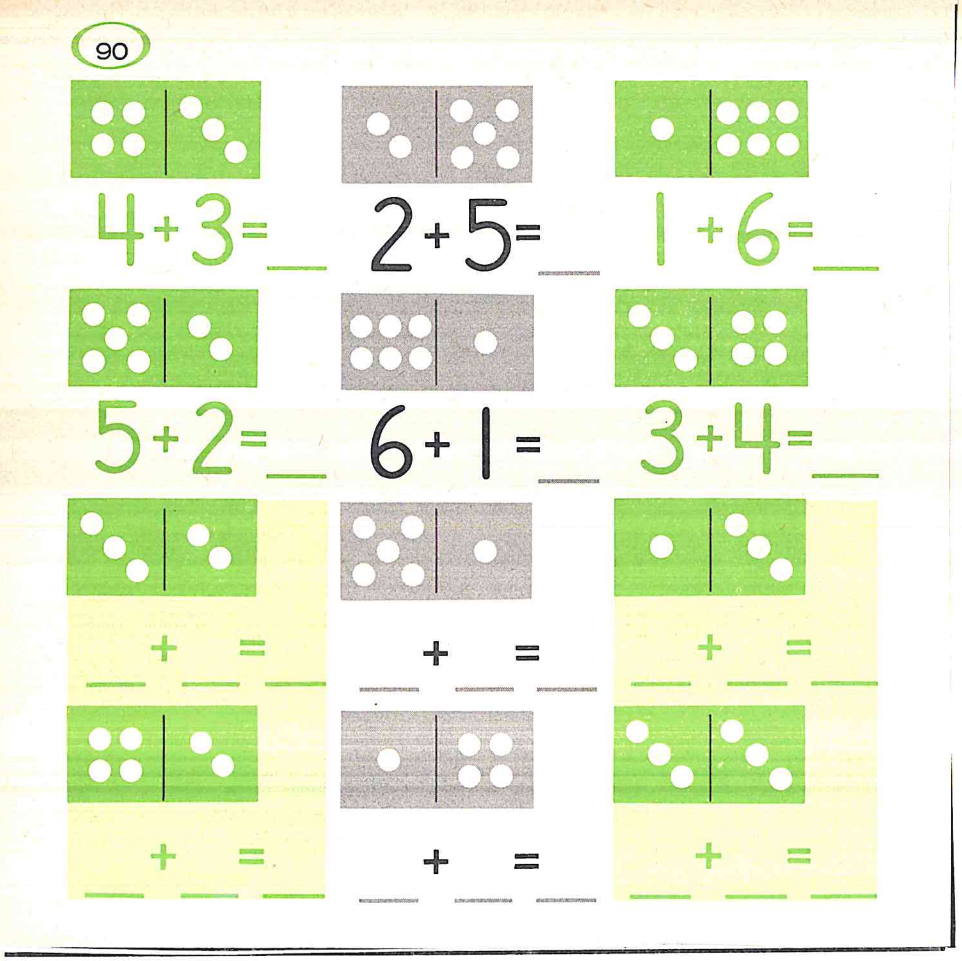


Winter Fun 89

Extended Activity

Continue the page in the booklet showing seven-ness. For directions see page 9.

Give the children envelopes containing counters. Have them demonstrate what they have learned about seven. Have them take their counters home to show their parents what they have learned.



4 + 3 = ___ 2 + 5 = ___ 1 + 6 = ___

5 + 2 = ___ 6 + 1 = ___ 3 + 4 = ___

___ + ___ = ___ ___ + ___ = ___ ___ + ___ = ___

___ + ___ = ___ ___ + ___ = ___ ___ + ___ = ___

90

Purpose

To develop the addition combinations in the 7-group.

Materials

7 counters for each pupil. A flannel board.

Developmental Activity

Put two subgroups for 7 on the flannel board or chalkboard—for example, 0 0 0 0 0 0 0. Combine them to get 7. Reverse the order: 0 0 0 0 0 0 0. Combine them to get 7. Help the pupils discover that the *order* of putting together does not change the answer. Create another pair of subgroups for 7. Repeat the procedure, with each pupil using his own set of counters.

Have the pupils say the number sentence that tells the story. Write it on the chalkboard. For example, 0 0 0 0 0 0 0 becomes $4 + 3 = 7$ and is read, "Four and three are seven." Point to each element in the sentence as it is read. Repeat this process for each of the six addition facts for 7:

$1 + 6$ $2 + 5$ $3 + 4$
$6 + 1$ $5 + 2$ $4 + 3$

Procedure

Open your books to page 90.

We are going to finish the number sentence for each of the domino pictures. Look at the first one. Who can read it? [4 and 3 are 7.]

In the last two rows point to them, we will write the number sentences for the dot pictures. Who can give the first sentence? [3 and 2 are 5.]

Finish the first number sentence. Then work the others. Write carefully. Be sure to put your numerals on the lines.

Circulate and give help as needed.

Extended Activity

Have each pupil make a set of flash cards for this set of combinations. Put the number sentence on one side and the domino picture on the other.

Have pairs of pupils practice the combinations, using these cards. Have each child keep a separate pile of the cards that he needs to study.

Purpose

To provide practice with the addition facts in 7 and to extend three — addend addition.

Materials

A set of 7 counters for each pupil.

Developmental Activity

Have each pupil put 7 counters on his desk.

Separate your counters into two groups like this: (Make a 0 0 0 0 0 0 0 pattern on the chalkboard.) **What is the number sentence for these groups?** [5 + 2 = 7] Write it on the chalkboard.

What other pairs of groups can you make from your 7 counters? List the six possible combinations on the chalkboard as the pupils suggest them. Arrange them like this:

1 + 6 = 7	2 + 5 = 7	3 + 4 = 7
6 + 1 = 7	5 + 2 = 7	4 + 3 = 7

How is each of the pairs alike? How are they different?

Procedure

Open your books to page 91. What is the number sentence for the first domino picture? [6 + 1 = 7] **Write the sentence on the lines below the dots.** Watch and give help as needed.

At the bottom of the page, we are going to add three numbers together. Remember how we did this when we played the bean bag game? Let's work the first one together. Write on the chalkboard:

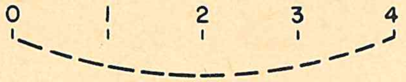
$$\begin{array}{l} 3 \\ 1 \end{array}\!\!> 4 \qquad \begin{array}{l} 3 \\ \hline 7 \end{array}$$

Start at the top. Three and 1 are 4. Write 4 (as in the illustration). **Then add; 4 and 3 are 7. Write 7 on the line.**

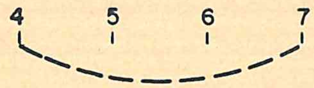
Circulate and help as needed.

Extended Activity

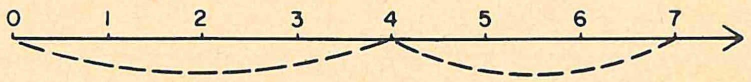
Play the Bean Bag Toss game. Give out worksheets with number lines 7 units long. Have the pupils work out the addition combinations—for example, 4 + 3 = 7. **Start at 0 and draw a line like this:**



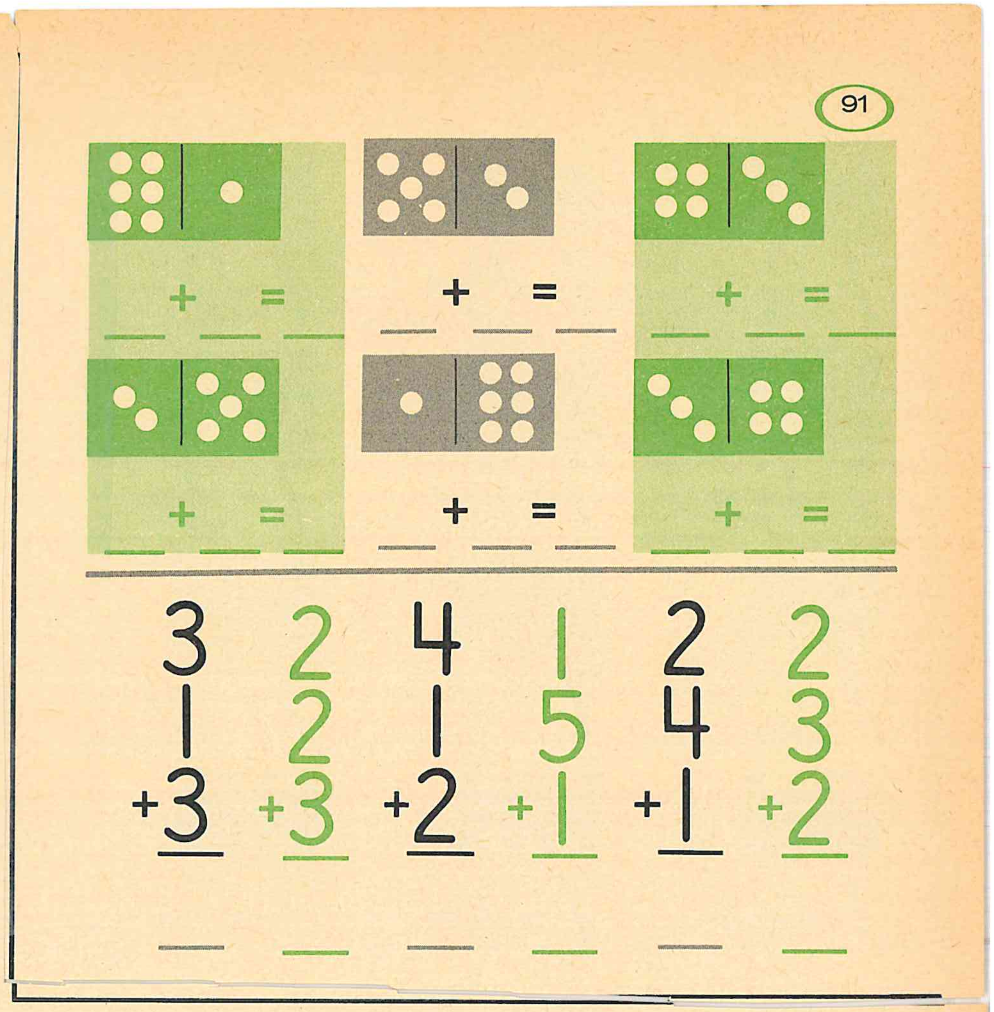
for the 4. It shows 4 spaces or 4 units. Then show the 3 by drawing another line like this:

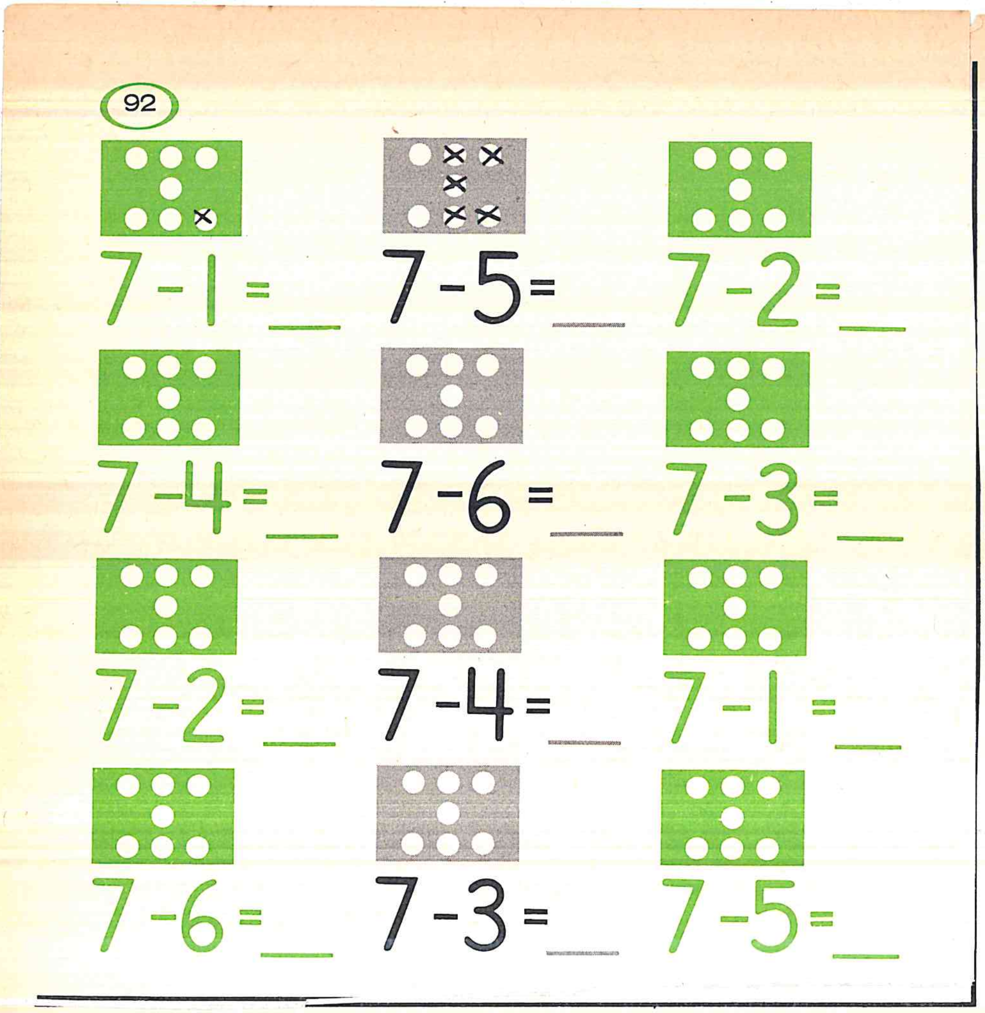


This shows 3 spaces or 3 units added to the 4 units. The number line now shows that 4 + 3 = 7.



Do each example on the page this new way.





92

7 - 1 = ___ 7 - 5 = ___ 7 - 2 = ___

7 - 4 = ___ 7 - 6 = ___ 7 - 3 = ___

7 - 2 = ___ 7 - 4 = ___ 7 - 1 = ___

7 - 6 = ___ 7 - 3 = ___ 7 - 5 = ___

Purpose

To discover the subtraction facts in the 7-group.

Vocabulary

Subtract.

Materials

A set of 7 counters for each pupil. A flannel board.

Developmental Activity

Put 7 objects on the flannel board or chalkboard and have each pupil put 7 counters in a row on his table or desk top. **If I take 1 of the objects away, how many are left?** [6] **Check with your counters. How do we write the number sentence for this?** Write the sentence on the chalkboard as a pupil dictates: $7 - 1 = 6$. Have the pupils read the number sentence as you point to each element in it. "Seven take away one leaves six."

Can we find another subtraction example in our 7 objects? What is one? Illustrate with flannel board objects while each pupil arranges his counters. Repeat the previous procedure, writing the number sentence on the chalkboard for each of the six subtraction facts in the 7-group:

$7 - 1 = 6$
$7 - 2 = 5$
$7 - 3 = 4$
$7 - 4 = 3$
$7 - 5 = 2$
$7 - 6 = 1$

Procedure

Open your books to page 92.

This page is about subtraction with the 7-group.

Look at the first picture story. How many dots are in the box? [7] **If we take 1 away, how many are left?** [6] **One dot is crossed off. Finish the number sentence.**

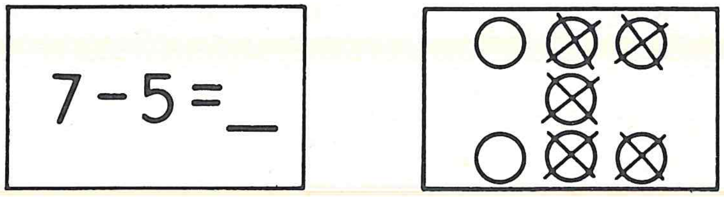
How many do we take away in the next example? [5] **How many are left?** [2] **Notice that 5 of the dots have been crossed off, 2 are left. Write the answer.**

In the rest of the examples, cross off the dots you take away and then write the numeral that tells how many are left.

Circulate and give help as needed. Have the pupils use counters if they have difficulty.

Extended Activity

Have each pupil make a set of subtraction flash cards for the combinations in the 7-group.



Put the number sentence on one side and the picture story on the other. Suggest that the children practice at home with Mother and Dad.

Purpose

To develop subtraction as finding the missing addend, using the 5-, 6-, and 7-groups.

Many *subtraction* problems require the pupil to find *how many more* are needed—for example, Sue has 3¢, a candy bar costs 5¢. *How many more* pennies does she need to buy the candy bar?

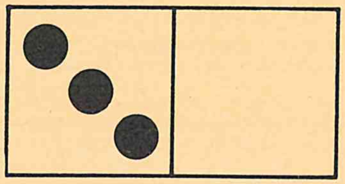
The number sentence is 3 + ______ = 5.

Materials

A set of counters for each pupil.

Developmental Activity

Draw a domino box on the chalkboard with 3 dots in one end.



How many dots do we need in this end (point) **to have 5 all together?** [2] Have each pupil arrange his counters to show a 3-group and a 2-group. Then combine them to make a 5-group. Repeat this procedure, with the pupils using counters, for each of the examples on page 93.

Procedure

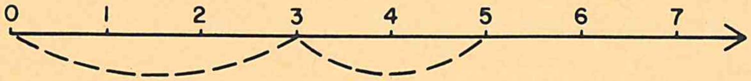
Open your books to page 93.

Look at the first box. What do we need to find? [Three and how many more are 5?] **What is the answer?** [2] **Draw in 2 dots and write the numeral 2 on the line. Do the rest of the page.**

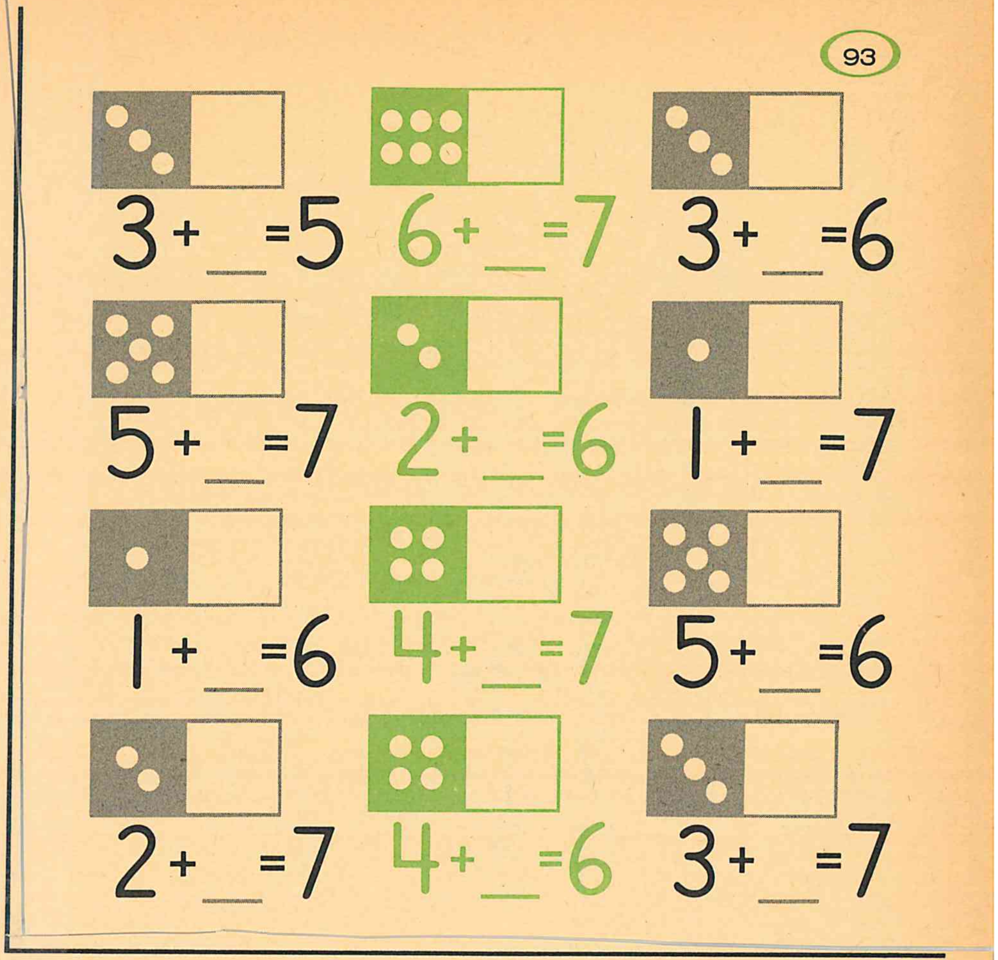
Circulate and give help as needed. When pupils do not know the answers, have them find them with counters. Speed practice with Dot Flash cards is indicated for the slow performers.

Extended Activity

Provide each pupil with a worksheet of number lines 7 units long. Have him work each example on this page using the number line—for example, 3 + ______ = 5. Have him find the 3 point, then the 5 point.



Three and 2 more are 5.



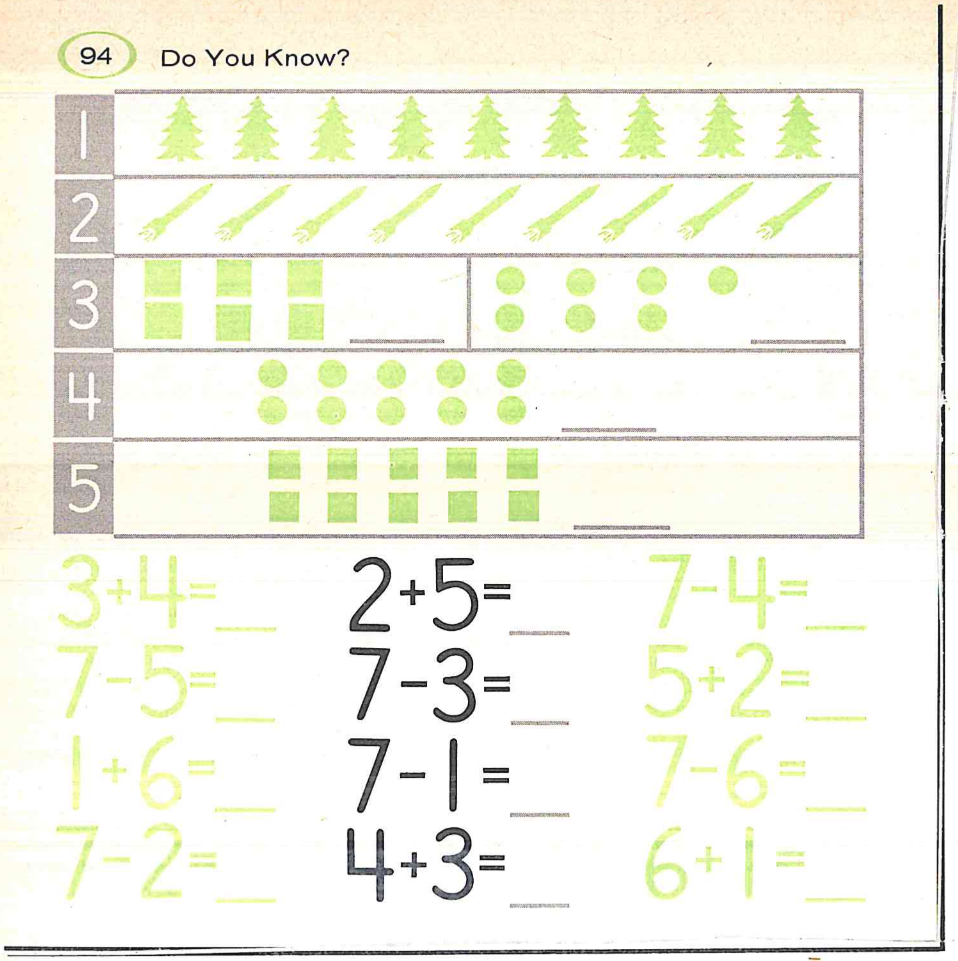
93

3 + ___ = 5 6 + ___ = 7 3 + ___ = 6

5 + ___ = 7 2 + ___ = 6 1 + ___ = 7

1 + ___ = 6 4 + ___ = 7 5 + ___ = 6

2 + ___ = 7 4 + ___ = 6 3 + ___ = 7


94 Do You Know?

3+4=___ 2+5=___ 7-4=___

7-5=___ 7-3=___ 5+2=___

1+6=___ 7-1=___ 7-6=___

7-2=___ 4+3=___ 6+1=___

94

Purpose

To test the readiness of the group to go on. This test covers the following:

1. Series—Knowledge of fourth and seventh
2. Group—Recognition of 6 and 7 as groups
   Reproduction of 5 and 7
3. Addition facts in 7
4. Subtraction facts in 7

Procedure

Open your books to page 94.

This is a review page to see how well we have learned about seven.

Look at the number 1 row with the trees. Draw a ring around the fourth tree.

Look at the number 2 row with the rockets. Draw a ring around the seventh rocket.

Look at the row with the numeral 3 in front. After each of the groups put the numeral that tells how many are in each group.

Find the row with the numeral 4 in front. Draw a line around 5 of the balls. Then write the numeral 5 on the line.

Find the row with the numeral 5 in front. Draw a line around 7 of the squares. Then write the numeral 7 on the line.

Now work the addition and subtraction examples at the bottom of the page. Watch the signs. Are we sitting up tall?

Circulate and give help as needed. When pupils are not watching the signs, point out their mistakes and have them correct them at once.

Extended Activity

Have the group take this page home and explain it to their parents.

95

Purpose

To associate measuring height with a personal experience. To recognize that there are different devices for measuring length and height, such as the foot ruler, the yardstick, and the tape measure.

Most six-year-olds do not have the physical eye-hand coordination to measure, mark, or cut a unit as small as one inch. However, if a child has the word *inch* in his speaking vocabulary, he can understand what an inch is.

(Continued on next page.)

(Continued from page 94)

Vocabulary

Inch, foot, foot ruler, yard, yardstick, tall, taller, tallest, height, long, longer, longest, length.

Materials

A 6″ cardboard ruler for each child, foot ruler, yardstick, tape measure, a strip of cardboard for each child, and objects of assorted lengths to be measured.

> A yardstick, a ruler, and a tape measure should be a part of the arithmetic corner or shelf. Use these for measuring the height of seats to meet individual differences in the height of children, for measuring the length of a piece of paper for a mural, or for measuring the floor to mark off an area for a game, etc.

Developmental Activity

Ask the children to tell how Mother and Father use tape measures, yardsticks, and rulers.

Ask the nurse to demonstrate how the measuring rod of the scales is marked and how it works.

Find each child's height. Keep this data for future use. Record the information in inches.

Relate page 95 to the firsthand experience of being weighed and measured.

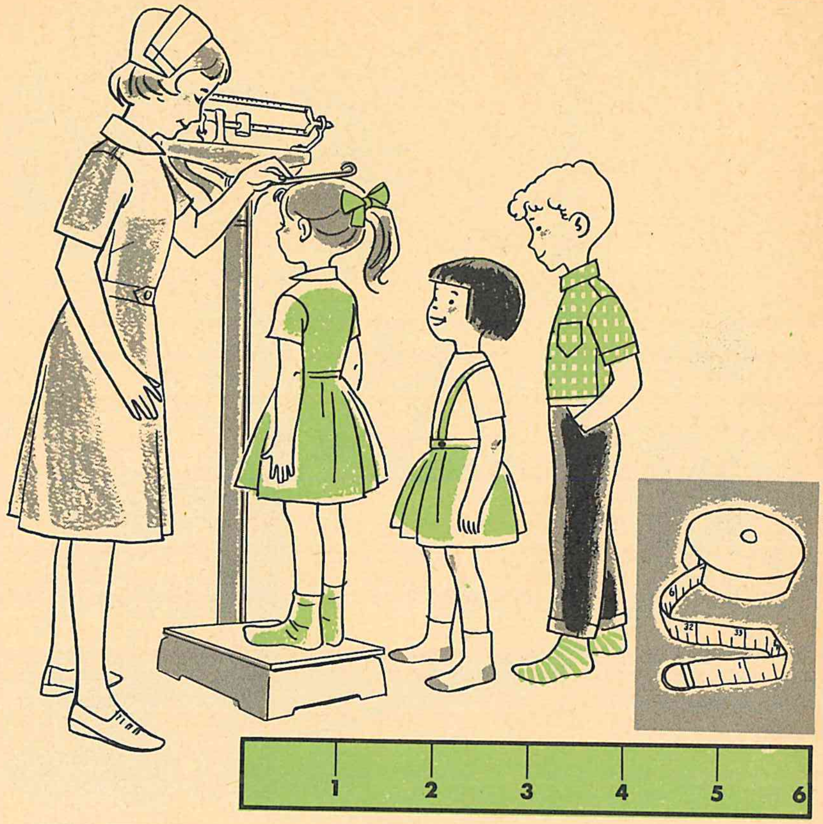
Procedure

What is being done to the first girl? [weighed and measured] **Do you think she is taller than her friend behind her?** [Estimation] **Why do all the children have their shoes off?** [They are waiting to be weighed and measured.] **Are all children who are six years old the same height?**

Find the tape measure. Put an X on it. Is it like Father's steel tape measure? Is it like the one Mother uses in sewing? Is it like the one in our room? What can we use our tape measure to measure in our room? [the length of the room, length of one or more tables, windows, etc.]

Do we have anyone in our room about a yardstick tall? Find something that is about a yardstick in length.

Hold up the 12″ ruler. Do you see anything this long? This is a foot ruler. Do you think it is about as long as a man's foot? Can you read the numerals? They go from 1 to 12. Each space in between the numerals is an inch. Demonstrate this on the chalkboard. **What do you see in the room that is about a foot long? Have a child measure it. Is it more or less than a foot long?**



Do you see the small ruler at the bottom of the page? I have strips of cardboard which I am going to give you. Measure to see if the cardboard is the same size as the ruler. How long is the ruler? [6 inches]

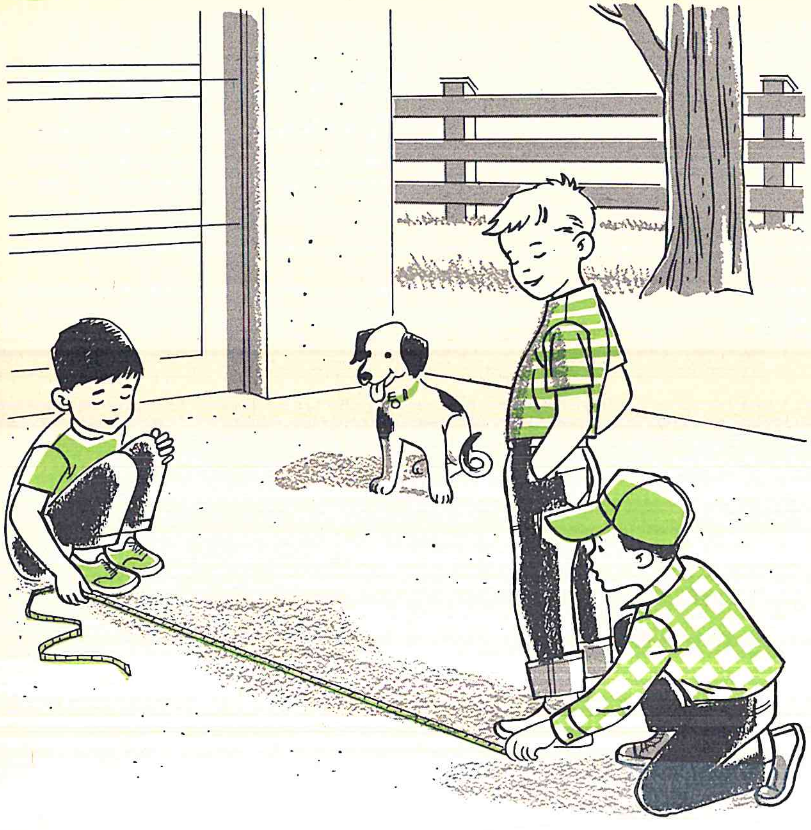
Now take your little cardboard rulers, and we will measure our books. Are they longer or just the same size as the ruler? Have the children measure something smaller. **Do you see something on my desk which you think is exactly the same size as the ruler?**

Extended Activity

Prepare a strip of paper to look like a large tape measure and attach it to the door. The children may have repeated experiences in finding heights with this. Such activities help them become familiar with the use of the tape measure or yardstick.

As part of the measuring experiences, the children may also learn about approximations: Joe is *almost* 44″ tall, etc.

96 How Long Is Your Shadow?



96

Purpose

To help children make approximations and comparisons. To use the ruler, yardstick, or tape measure to verify judgments.

Vocabulary

Estimate, guess, approximate, about as long as, longer than, shorter than, more or less.

Materials

Chalk; tape measure; yardstick; a strip of paper 3″ wide and 60″ long, which is marked off in inches.

Developmental Activity

Enjoy the poem, "My Shadow," by Robert Louis Stevenson, from *A Child's Garden of Verses.*

On a sunny day take the children for a walk to observe their shadows. Call attention to shadows of other objects, such as trees, buildings, telephone poles.

Have the children stand, hop, skip, stand with their arms out, etc. Ask the children to notice their shadows when they are in these different positions. Go out at different times of the day. **Does the time of day seem to have anything to do with how long the shadow is?**

Ask the children to *guess* how long their shadows are. (approximation) Ask them if there are any shadows as long as a yardstick or longer. Guess. Measure. Decide.

While the teacher is outside with the children, she should demonstrate how the children can help each other outline their shadows and measure them with a tape measure. Have the children compare and record the length of the shadows. If the tape measure is used, the length should be given in inches.

Procedure

Open your books to page 96.

Discuss the picture of the boys and the dog. **What are the boys doing?**

Guess how long the dog's shadow is. Will he sit still long enough to be measured? [no]

Who has the longer shadow, the boy or the dog? Put an X on the longer shadow.

Extended Activity

Mark a piece of paper from 1″ to 60″. Tape it to the door. Encourage the children, working in pairs, to find each other's height. Let them record their own height in inches on a chart. It might look like this:

Name	*Height*	*Shadow*
George	42″	60″

Have the children, working in pairs, measure each other's shadows on the playground surface. Then have them record the information opposite their height, as in chart above. The teacher or the children may do the recording. When this information is recorded, it may be used as a basis for a discussion of *which is more, which is less.*

Purpose

To aid children in understanding (1) that the calendar is a significant device for measuring time; (2) that many uses are made of the calendar, one of which is to discover what days come *before* and *after* important events.

Vocabulary

Before, after, until.

Materials

1-inch square for covering numerals.

Developmental Activity

The learning involved in this page can be approached in many ways.

The teacher should be using a developmental calendar with the class every day. The calendars in the book, pages 23 and 72, have been presented; therefore, the children can be taught the numerals that come *before* and *after* very easily by using the calendar. The month selected should have an event of special significance to children, such as spring vacation, Easter Sunday, a birthday, or a party.

The Procedure cited below is only suggestive. The Extended Activity describes a game that can be used regularly for brief periods. These activities help the children acquire familiarity with the ordinal idea.

Before beginning the lesson on page 97, it would be well for the teacher to say the ordinals in sequence from first through thirty-first with the children using the calendar as a visual aid.

Procedure

Let us open our books to page 97. Here we have another calendar.

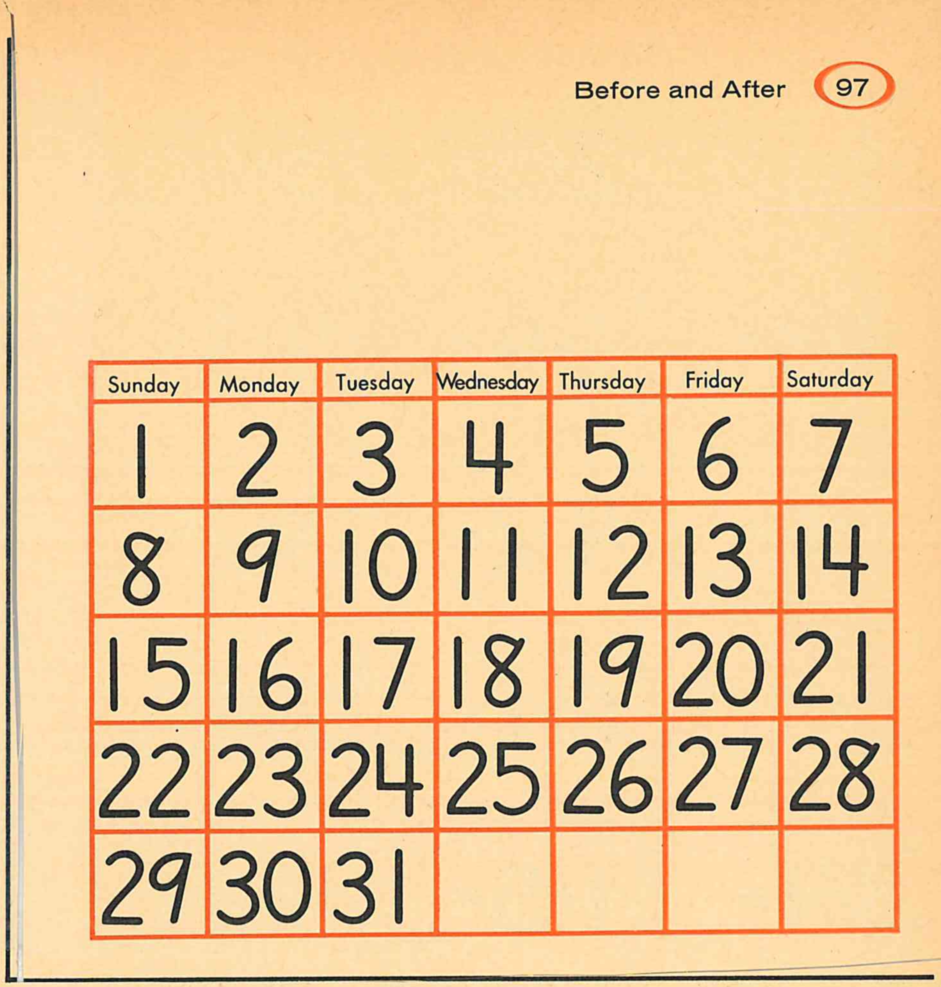
Someone I know has a birthday this first week. It is on Friday, the sixth. Find it. What day comes before that? [Thursday, the fifth] **What day comes after that?** [Saturday, the seventh]

In the next week (show what a week is if necessary) **on the tenth, some children are having a play. Find the tenth. Tell me what day comes before and what day comes after.**

In the next week on the twentieth, we are having company. Find the twentieth. What day comes before? What day comes after? Listen carefully.

What are the last 2 days of the month? Can anyone tell me the name of the day that comes before the thirtieth? [the twenty-ninth]

What day do you think comes after the thirty-first? If any children know, commend them for it. If they do not know, tell them.



Before and After 97

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

Extended Activity

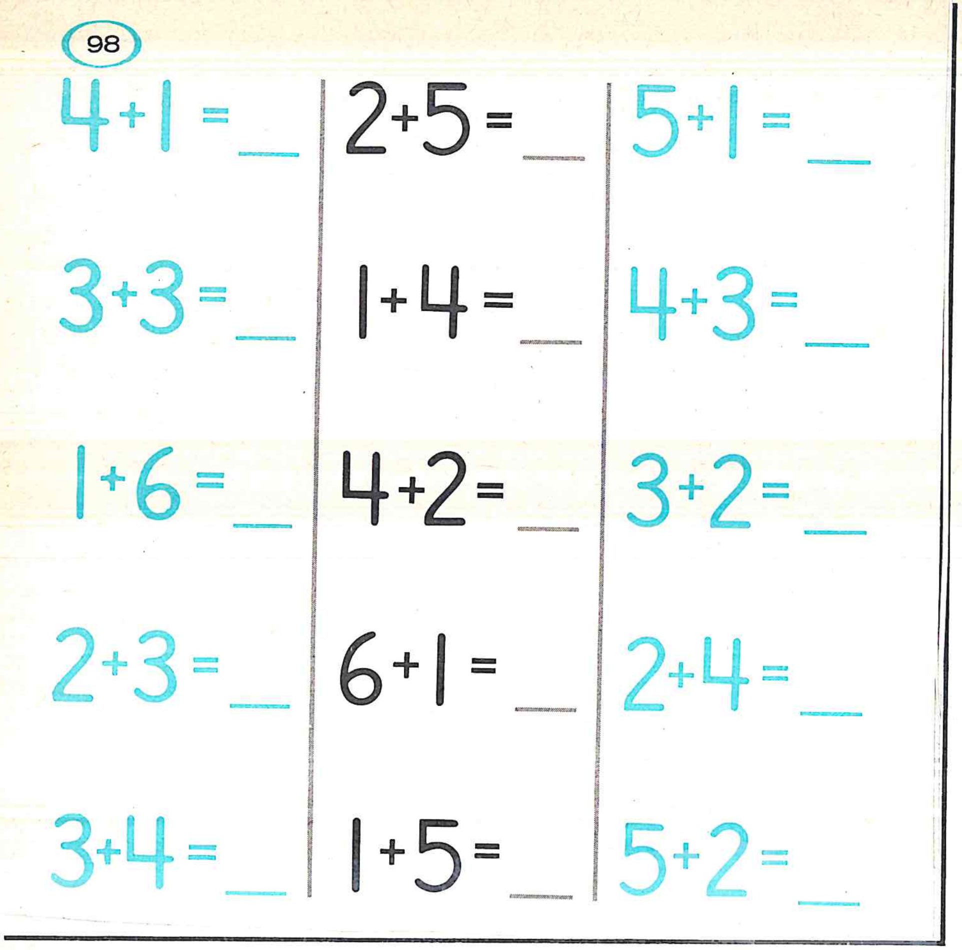
Give each child a square inch of cardboard.

Play a seek-and-find game. Begin by saying:

1. **Cover the numeral that comes after 1.** Check to see if all the children understand.
2. **Cover the numeral that comes before 7.**
3. **Cover 12. Tell me what number comes before. Tell me what number comes after 12.**
4. **Find 15. Cover it. Tell me what number comes after it. Tell me what number comes before it.**

This game may be continued as long as interest is maintained. Variation can be given by asking a child to call the numbers and others in the class to find the numerals coming *before* and *after*.

Ask the children which is longer, a month, a week, or a day.



98

4 + 1 = __

3 + 3 = __

1 + 6 = __

2 + 3 = __

3 + 4 = __

2 + 5 = __

1 + 4 = __

4 + 2 = __

6 + 1 = __

1 + 5 = __

5 + 1 = __

4 + 3 = __

3 + 2 = __

2 + 4 = __

5 + 2 = __

98

Purpose

To provide practice with the addition facts in 5, 6, and 7.

> This review and practice session helps each pupil *to say*, *to see*, and *to write* as he thinks about addition.

Materials

A set of 7 counters.

Developmental Activity

Draw 5 circles on the chalkboard: 0 0 0 0 0. Quickly have the pupils tell and show with their counters the pairs of subgroups that make 5 (1 + 4, 4 + 1, etc.). Hold a piece of chalk to make the appropriate separations of the circles on the chalkboard.

Use the same procedure for 6 and 7.

Procedure

Open your books to page 98. Write in the numeral to finish each number sentence. Make good numerals. Are you sitting up tall?

Circulate and help as needed.

Extended Activity

Have each pupil take his Number Flash cards home to play Addition Number Flash with his parents.

Purpose

To provide practice with the subtraction facts in 5, 6, and 7.

Materials

A set of 7 counters.

Developmental Activity

Have each pupil take out a set of 7 counters. Have the pupils work each example on page 99 with their counters as you say it. In the first row for example: **Show me 5 counters; now take away 2 of them. Frame those that are left.** [3]

Follow this procedure for each of the combinations.

Procedure

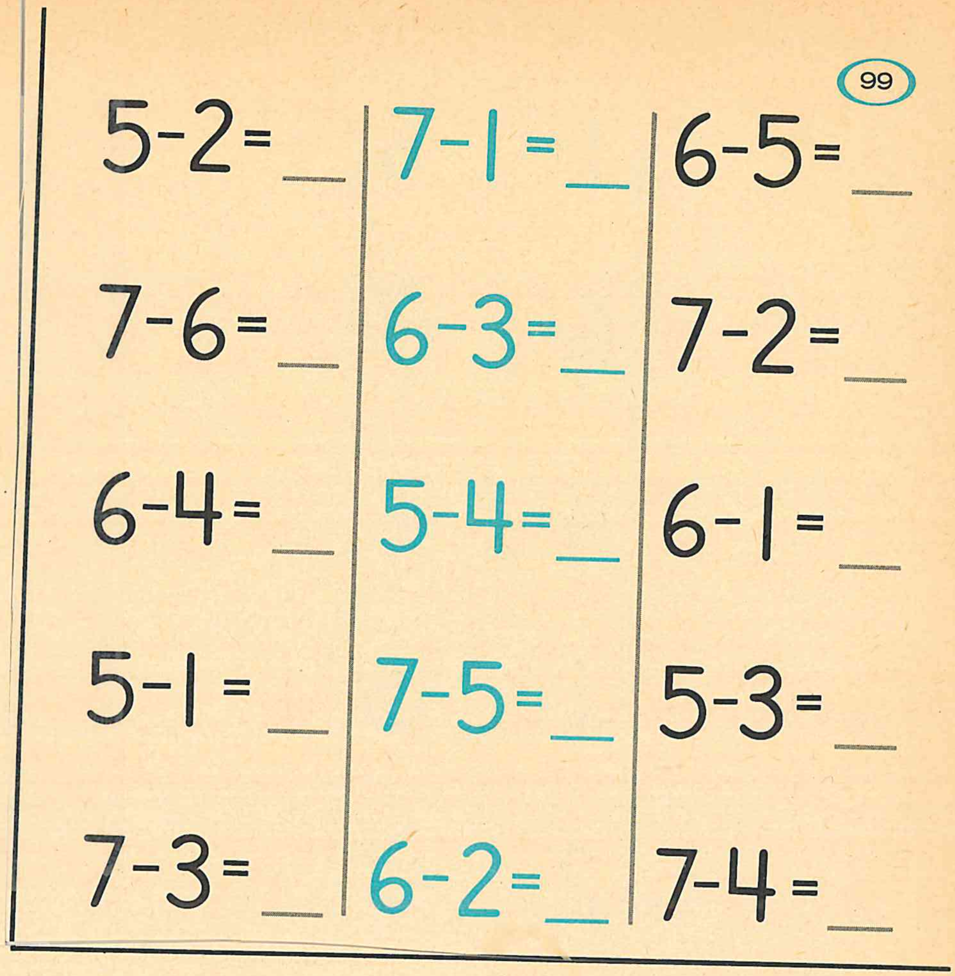
Open your books to page 99. Write the numeral to finish each number sentence. Make good numerals. Are you sitting up tall?

Circulate and help as needed.

Extended Activity

Have each pupil take his Number Flash cards home and play Subtraction Flash with his parents.

For those needing extra help and practice, pass out paper with number lines on it and have the children work each example on the number line.



5-2= _

7-6= _

6-4= _

5-1= _

7-3= _

7-1= _

6-3= _

5-4= _

7-5= _

6-2= _

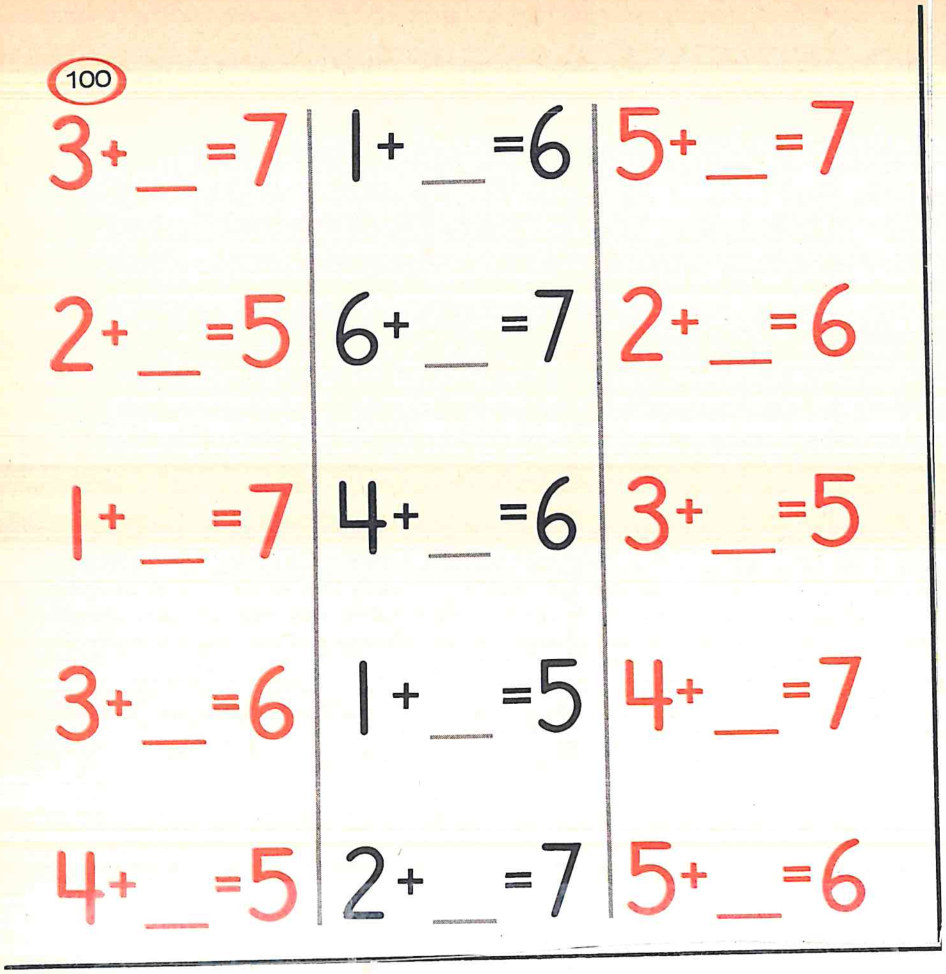
6-5= _

7-2= _

6-1= _

5-3= _

7-4= _



100

3+_=7
2+_=5
1+_=7
3+_=6
4+_=5

1+_=6
6+_=7
4+_=6
1+_=5
2+_=7

5+_=7
2+_=6
3+_=5
4+_=7
5+_=6

100

Purpose

To provide practice with subtraction as finding the missing addend in the 5-, 6-, and 7-groups.

Materials

A set of 7 counters.

Developmental Activity

Have each pupil take out a set of 7 counters. Have the pupils work each example on page 100 with their counters as you say it. For example, for the first one say, **Show me 3 counters. These and how many more make 7 counters?** The pupils would arrange a 3-group and 4 more:

0 0 0   0 0 0 0   0   0 0
0 0   0 0

Use this procedure for each of the combinations.

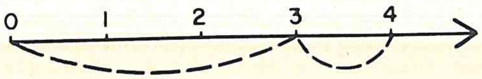
Procedure

Open your books to page 100. Write the correct numeral in the blank space in each number sentence. Make good numerals. Are we sitting up tall?

Circulate and help as needed.

Extended Activity

Pass out paper with number lines on it. Have the children use these to show the answer to each example on this page—for example, 3 and 1 more are 4.



Purpose

To develop an understanding of "eight-ness," to review the concept of pairs, to relate a vicarious experience to counting by 2's and to extend the ability to count.

Vocabulary

Each, pairs, pair, oldest, o'clock, blocks, youngest, new, two, four, six, eight, more, inside, left, right, outside.

Materials

Flannel board, cardboard cutouts of boots, brown and white oxfords, black patent-leather slippers, boys' brown oxfords. These may be free-hand cutouts or pictures of shoes taken from catalogues and pasted to sandpaper or flocking to adhere to the flannel board. Stick figures to depict characters in the story, crayons.

Developmental Activity

"The Shoe Parade" on page vi may be read to the children.

Sketch a background to suggest a shoestore. This background and figures of the story characters may be used in other situations by both teacher and pupils. If flannel board techniques are used as the story is read or told, the children's interest will be heightened.

If the flannel board is not used, the teacher should make more use of the picture in the children's book and explore all the possibilities for arithmetical learnings.

Procedure

Let us study the picture on page 101 and see what we can discover. What are the smallest things in the room? Put a circle around them.

Who is the smallest person? [Raymond]. **What shape is his balloon?** [round] **Mark it with a blue X.**

Who are the tallest persons in the room? [Mother, Mr. Howard] **Put a yellow X on Mother and Mr. Howard.**

Who is the biggest boy? [Gary] **Put a red X on him.**

What child is next in size? [Janet] **Mark her with a green X.**

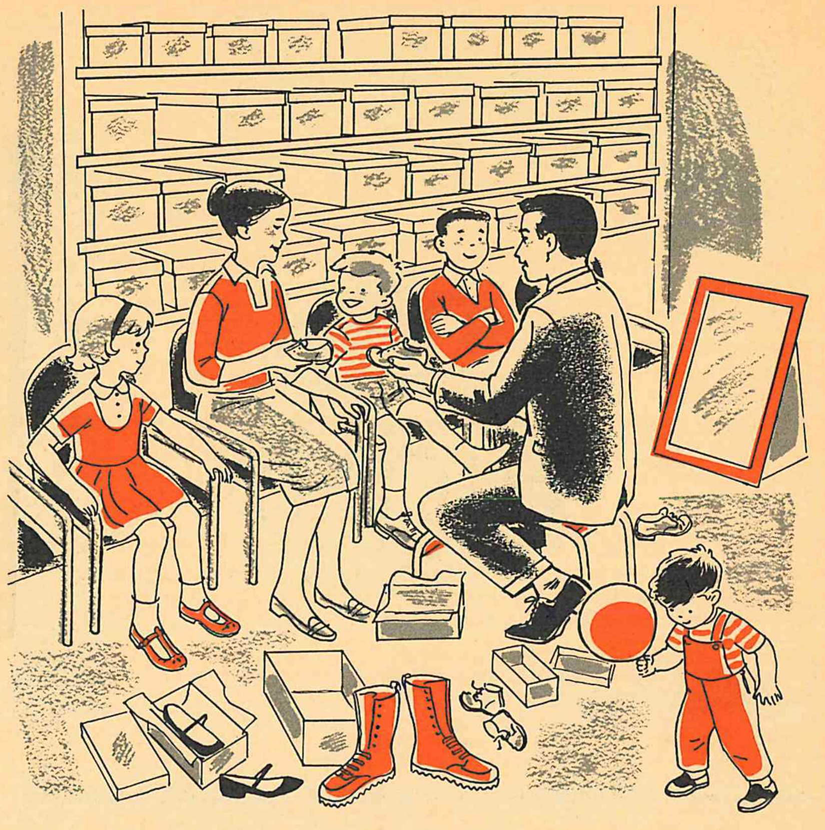
What shape are the rows and rows of boxes? [rectangles] **What shape is the mirror?** [rectangle]

We always buy shoes in pairs. Why?

Was Gary counting shoes or pairs of shoes? [shoes]

All four children got new shoes; how many pairs is that? [4] **How many shoes?** [8]

According to Gary's jokes, after the baby had new shoes, how many shoes were needed? [6] **Gary said, "Two down and 6 to go." We can say 2 and 6 are 8. How can we write it?** [$2 + 6 = 8$]



After Johnnie had new shoes, what did Gary say? [4 down and 4 to go] **We say 4 and 4 are 8. How do we write it?** [$4 + 4 = 8$]

After Janet selected her shoes, what did Gary say? [6 down and 2 to go] **How can I write it?** [$6 + 2 = 8$]

When all the children had their new shoes on, tell me how they marched. [in a line]

Show me what "left, right; left, right" means. Let several children demonstrate.

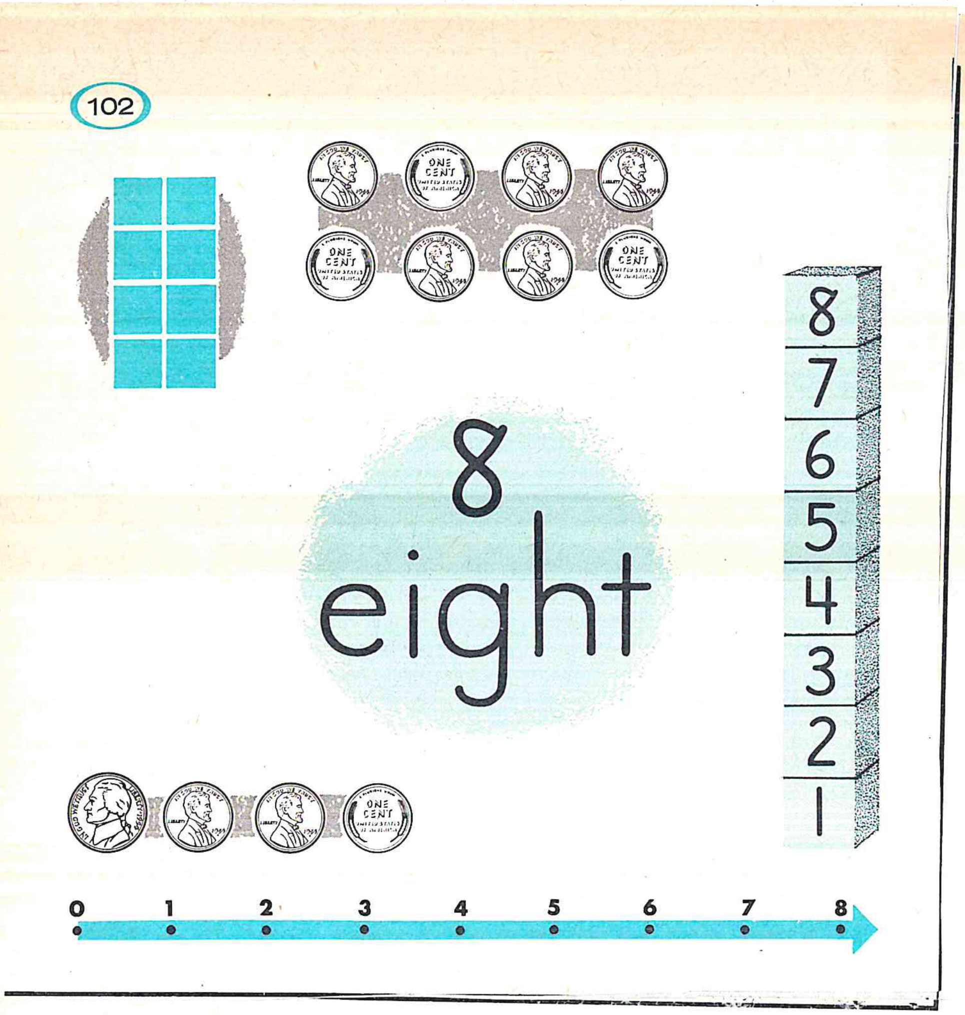
Tell me how the children counted. [by 2's]

Let's repeat their chant. Say it.

Wasn't buying shoes fun for this family?

Extended Activity

1. Place objects in various 8-groups about the room. Continue working on number sentences, using all the groupings that make 8.
2. Give additional experiences in counting by 2's. Use blocks or small cubes.
3. Have children look for pictures of things that come in pairs. These may be pasted to a large sheet of paper and hung in the room.



102

Purpose

To develop the concept of eight as a group or set. To extend the understanding of number structure. To provide extensive opportunities for finding a variety of substructures in 8.

Vocabulary

Number line, eight, more than, less than, right, left.

Materials

A chalkboard number line, 8 counters for each pupil.

Developmental Activity

Have the children find sets of 8 in the room. Divide a group of eight pupils into groups of 7 and 1, 6 and 2, etc.

Have the children take out their counters and put 8 of them in a row. **How many sets of 2 each are there in 8?** [4] **What is the number sentence?** [2 + 2 + 2 + 2 = 8] **How many sets of 3 each are there in 8?** [2] **What is the number sentence?** [3 + 3 + 2 = 8]

What pairs of numbers make 8? Can you find them? [7 + 1, 6 + 2, 5 + 3, etc.]

> At this stage of development, the emphasis is on *seeing* the group structure, rather than on writing the symbols.

Procedure

Open your books to page 102.

What is the numeral in the center of the page? [8]

Frame the number word for 8 with your hands. Softly say it together—eight.

Now look at the stack of blocks on the right side of the page. How many blocks tall is it? [8] **With your crayon make an X on the number 5 block. Put a ring around the number 8 block. Put a square around the number 7 block.**

Find the 8 pennies. Put your finger on them. What kind of pattern do they make? [4 + 4 or 2 + 2 + 2 + 2] **With your crayon make a ring around 4 of the pennies. Now make a ring around the other 4. Four and 4 are ______.** [8]

Look at the squares on the left side of the page. How many patterns can you find in them? [2 + 2 + 2 + 2 and 4 + 4] **Do they come out even?** Discuss.

Now look at the other money. What coins do we have? [1 nickel and 3 pennies] **Draw a ring around the nickel. A nickel has the same value as how many pennies?** [5] **What number sentence can we write about the money?** [5 + 3 = 8]

> When we write a number sentence, we write only the numerals; therefore, the number sentence is written: 5 + 3 = 8.

Now look at the line at the bottom of the page. What special kind of line is it? [a number line] **Let's read the numerals on it. 0, 1, 2, 3, 4, 5, 6, 7, 8. Can we read them backwards? 8, 7, 6, 5, 4, 3, 2, 1, 0.** Develop all the addition and subtraction facts using the line in a procedure similar to that used for the 7-group. See page 86.

Extended Activity

Provide scissors, paste, and old magazines and have the group illustrate 8 on a 24″ x 36″ piece of newsprint. Have the group work in pairs. Evaluate with the group.

Purpose

To develop facility in finding subgroups in 8. To teach how to write the numeral 8.

Materials

A set of 8 counters for each child. A flannel board.

Developmental Activity

Put a set of 8 objects on the flannel board in two 4-patterns. Have the group arrange their sets of counters in the same pattern on their desk tops.

How is this 8 grouped? [4 + 4] Discuss. **Who can make another 8-pattern?** Discuss.

Let pupils take turns showing different 8-patterns on the flannel board. Have each pupil organize his counters to show the new pattern.

Follow the pattern of development used for lesson 87. Discussion should bring out several generalizations: (1) Pairs of subgroups can make 8. Have the children try to find all seven pairs. (2) Sets of three subgroups can make 8. How many can the children find? (3) Sets of more than three subgroups can make 8. Develop this as appropriate with the group. For example, $2 + 2 + 2 + 2 = 8$.

As each of these grouping relations emerges, have the children develop the number sentence for it.

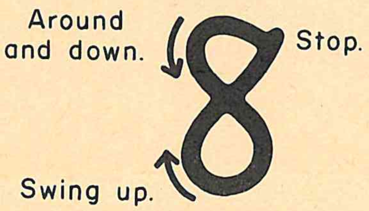
Procedure

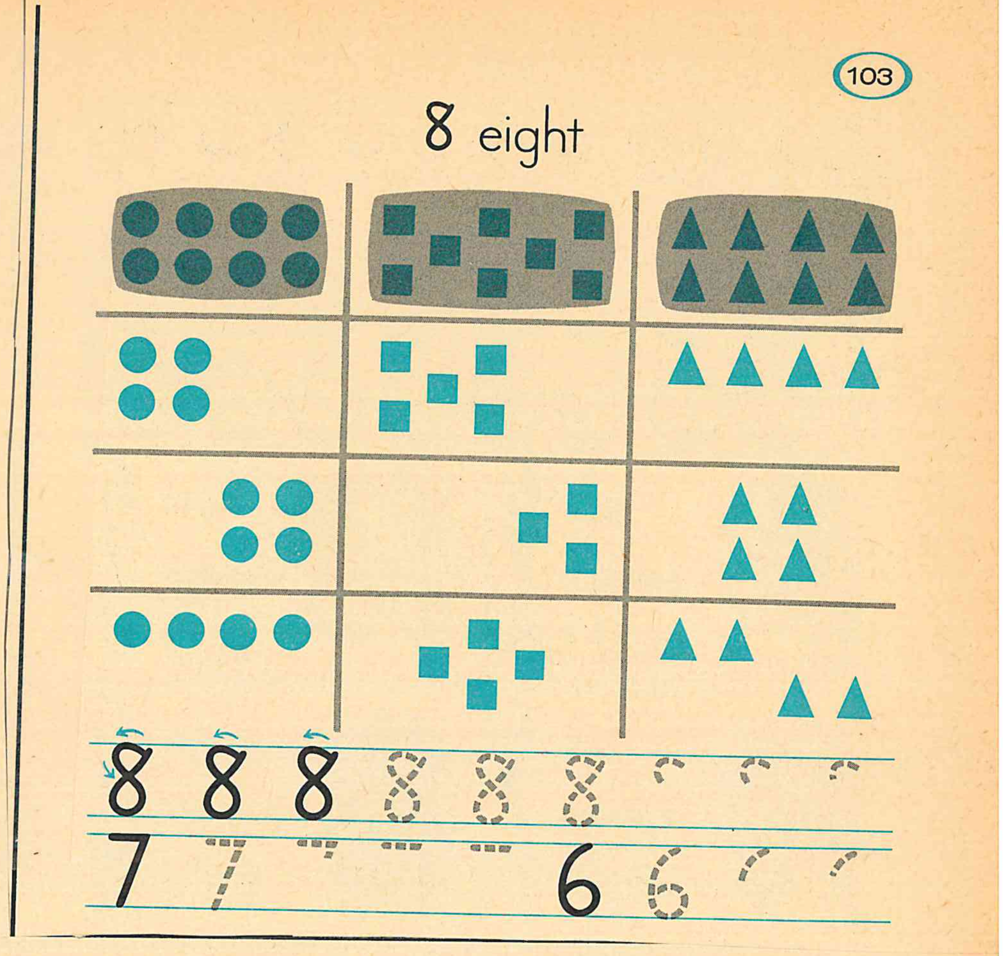
Open your books to page 103.

What is the numeral at the top of the page? [8] **And the number word that goes with it?** [eight] **This is a page about eight.**

How many dots are in the first box? [8] **How are they grouped?** Discuss. **Do you think you can make the other dot groups in the first column on the left** (point) **look like those in the shaded block? We have done this before, haven't we? Do the other columns in the same way.**

Now look at the bottom of the page. We are going to learn how to write the numeral 8. Watch how I do it. Demonstrate on the chalkboard.





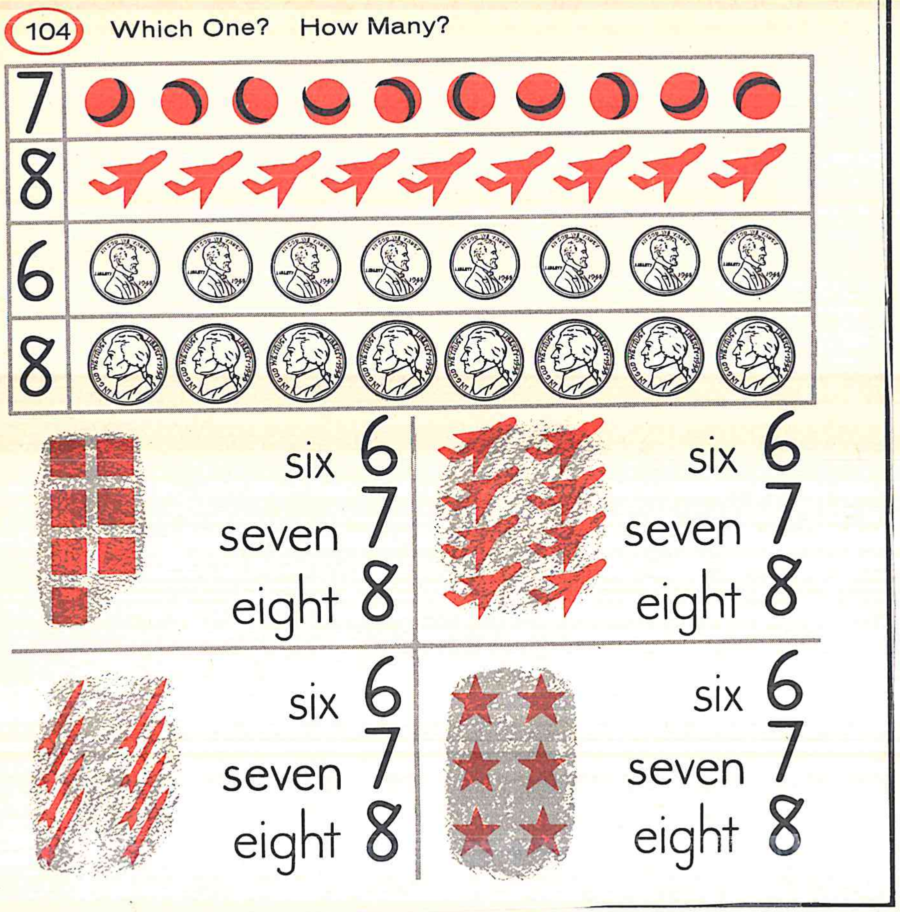
Demonstrate several times. Have the group follow, making 8's on their desks with their fingers.

Now let's write the numerals at the bottom of the page. When you finish them, complete the 8-group pictures at the top of the page.

Observe how each child is writing 8. Give help as needed. **Are we sitting up tall?**

Extended Activity

Make a set of dot patterns for 8 and add them to the Number Group game developed on page 57.



104 Which One? How Many?

7

8

6

8

six 6
seven 7
eight 8

six 6
seven 7
eight 8

six 6
seven 7
eight 8

six 6
seven 7
eight 8

104

Purpose

To develop the idea of eighth and to develop further the subgroup relationship in 8.

Vocabulary

Eighth.

Materials

A set of counters for each pupil. A flannel board.

Developmental Activity

Put a single horizontal row of 8 objects on the flannel board. **Which one is sixth? seventh?**

Write the word *eight* on the chalkboard. **What is this number word?** [eight] **Which is object number 8 on the flannel board? We call it the eighth one.** Put an *h* on the end of *eight*.

Line up 8 counters on your desk. Point to the eighth one. Visually check to be sure the children point to the right one. Quickly have the group point to the fifth, second, fourth, first, sixth, third, eighth, and seventh counters. Repeat if necessary.

Next have the pupils discover how many ordered patterns or groupings for 8 they can make with their counters:

0000 00000 000000 0000000
0000 000 00 0

What pair of addition facts can be made with each of these groupings? We need a number sentence for each one.

Write the number sentences on the chalkboard as children list them:

$4+4=8$ $5+3=8$ $6+2=8$ $7+1=8$
$3+5=8$ $2+6=8$ $1+7=8$

An important part of this lesson is the informal exploring with objects of all the paired additions for 8.

Next have the group find several sets of three subgroups for 8. **Put your 8 counters in a row. Make a 3-group, another 3-group, and a 2-group. How can we write a number sentence for our counters?** [3 + 3 + 2 = 8] **Let's read it together: "Three and three and two are eight."**

Make five more number sentences with three little groups in 8. Find them with your counters first. There are many correct solutions:

$1+1+6=8$ $2+1+5=8$ $2+2+4=8$
$1+6+1=8$ $1+2+5=8$ etc.
$6+1+1=8$ $5+1+2=8$ $3+2+3=8$
$1+5+2=8$ etc.
$2+5+1=8$ $4+1+3=8$
$5+2+1=8$ etc.

Procedure

Open your books to page 104.

On the top part of the page, look at the numeral at the front of the row. Then put an X on the object in that place in the row. Let's work the first row together. Which ball would you put an X on?

On the bottom part of the page, draw a ring around the number word and numeral that tell how many are in the group next to them.

Do the page.

Extended Activity

Have the pupils explain this page to their parents.

Purpose

To review the symbols for 1 through 8 and the number names for them.

Materials

A set of 5″ x 8″ flash cards with the number names *one* through *eight* written on them. A set of 8 counters for each pupil. A set of numeral cards from 1 through 8 for each pupil.

Developmental Activity

Show the number-name cards in random order. Have the pupils respond by showing *how many* with their counters. This can be a quiet activity. Visually check each pupil's work before showing the next card.

Then flash the number-name cards in random order. Have the pupils respond by showing their cards with the correct numeral for the number name.

Procedure

Open your books to page 105.

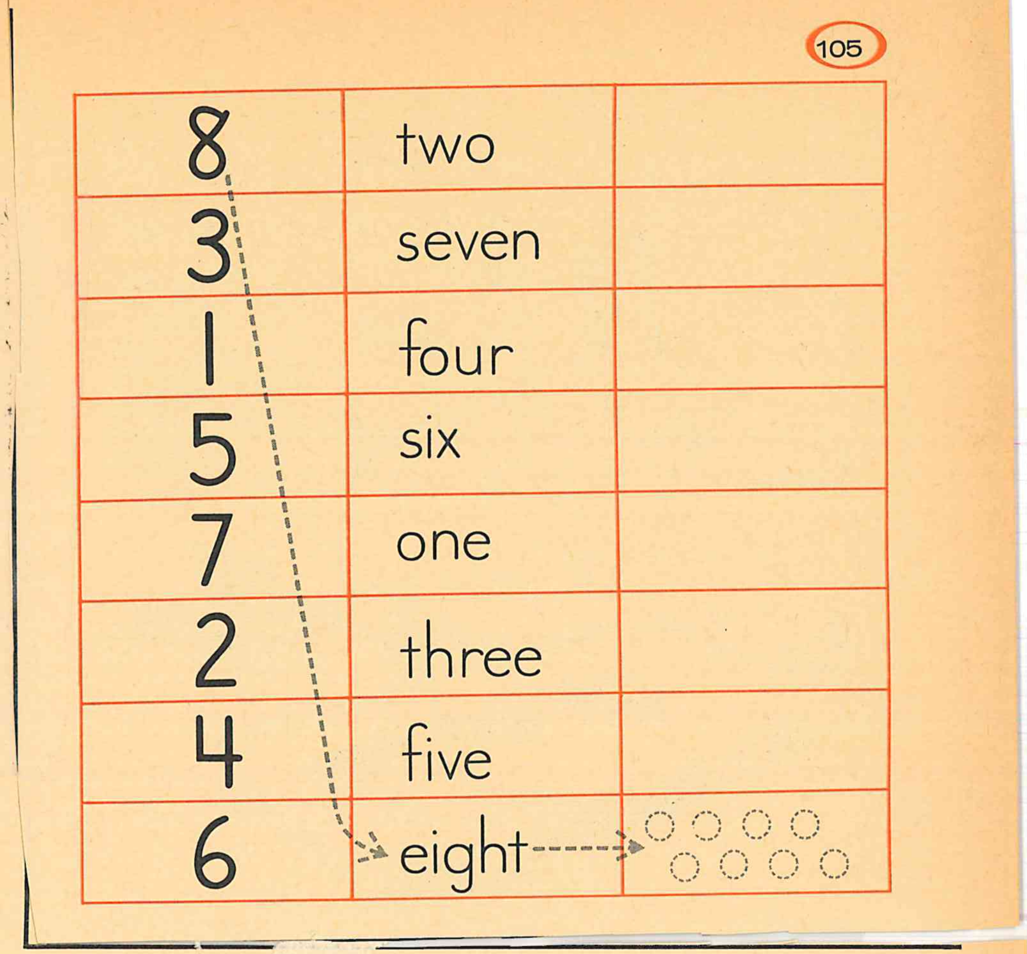
What is the numeral at the top of the first column? [8] **Can you find the number word for 8? Draw a line from the numeral 8 to the word eight.**

What do you think belongs in the last column? Draw a dot pattern for the number word in front of each box.

Have the pupils work the page. Give help as needed.

Extended Activity

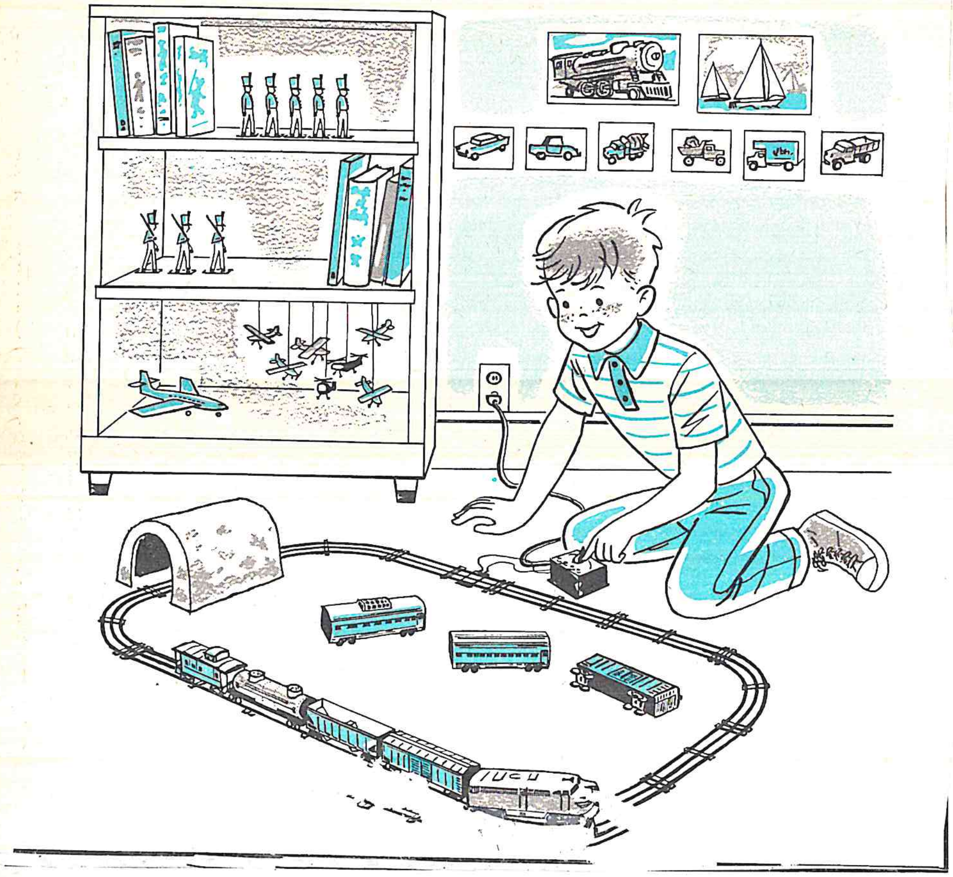
Have the pupils take this page home to share with their parents.



105

8	two	
3	seven	
1	four	
5	six	
7	one	
2	three	
4	five	
6	eight	○ ○ ○ ○ ○ ○ ○ ○

In a Boy's Room



106

Purpose

To discover the number sentences about "eight-ness," and to provide an opportunity for solving verbal problems. To help the children see that ships, airplanes, cars, and trains are all forms of transportation (preparation for teaching *set.*)

Vocabulary

Eight, eight-ness, in all, all together, how many, all, collection.

Materials

Pictures of means of transportation cut from magazines to use on a bulletin board as readiness for the page.

Developmental Activity

Have the children collect pictures of various means of transportation and discuss them.

Procedure

Open your books to page 106. Do you see anything on this page that we have been talking about? This looks like a page that boys will especially enjoy.

How many boys have electric trains? Who plays with them with you? Give time for children to tell of their experiences. **Perhaps the boy in this picture got his trains for his birthday.**

Put a blue X on the engine. Including the engine, how many cars are on the track? [5] **How many cars are not on the track?** [3] **How many cars in all?** [8]

Do you have a collection of pictures in your room? How many large pictures do you see at the top of this page? [2] **Put a green X on them. How many pictures of cars and trucks do you see below these?** [6] **How many all together?** [8] **Who can say the number sentence?** [2 and 6 are 8.] **Can we say it another way?** [6 and 2 are 8.]

This little boy enjoys storybooks. How many books do you see on the top shelf? [4] **How many do you see on the next shelf** [4] **Draw a line from the 4 books on the top shelf to the 4 books on the next shelf. How many all together?** [8] **Can we say it as a number sentence?** [4 and 4 are 8.] **Can we write it as a number sentence?** [$4 + 4 = 8$]

I see something else this little boy collects. That's right. They are toy soldiers. How many are on the top shelf? [5] **How many on the next shelf?** [3] **How many in all?** [8] **Draw a ring around all the soldiers. How shall we say it as a number sentence?** [5 and 3 are 8.] **Can we say it another way?** [3 and 5 are 8.]

I see an interesting collection. Yes, it is an airplane collection. How many large airplanes are there? [1] **How many small airplanes?** [7] **Draw a line from the large airplane to the small ones. How many in all?** [8]

Go to the chalkboard. **Help me think of some things about 8.** Elicit these from the children and make number sentences, such as:

$2 + 6 = 8$
$6 + 2 = 8$

$4 + 4 = 8$

$3 + 5 = 8$
$5 + 3 = 8$

$7 + 1 = 8$
$1 + 7 = 8$

Using these numbers, who can make a story problem? I will tell you one. Two children were playing ball. Six more joined them. How many children were there all together?

Who can make another problem?

Extended Activity

Make a page of the story of eight for the booklet.

Purpose

To develop the addition combinations in the 8-group.

Materials

8 counters for each pupil. A flannel board.

Developmental Activity

Put two subgroups for 8 on the flannel board or chalkboard: 0 0 0   0 0 0 0 0. Combine them to get 8. Reverse the order: 0 0 0 0 0   0 0 0. Combine to get 8. Help the pupils discover that the order of putting together does not change the answer.

Repeat this procedure with another pair of subgroups for 8. Have the pupils say the number sentence that tells the story. Write it on the chalkboard. Have the children read it. Point to each element in the sentence as it is read.

Repeat this process for each of the seven addition facts for 8:

1 + 7	2 + 6	3 + 5	4 + 4
7 + 1	6 + 2	5 + 3	

Procedure

Open your books to page 107.

We are going to finish the number sentence for each of the domino pictures. Look at the first one. Who can read it? [4 and 4 are 8.] **Write the 8 on the line.**

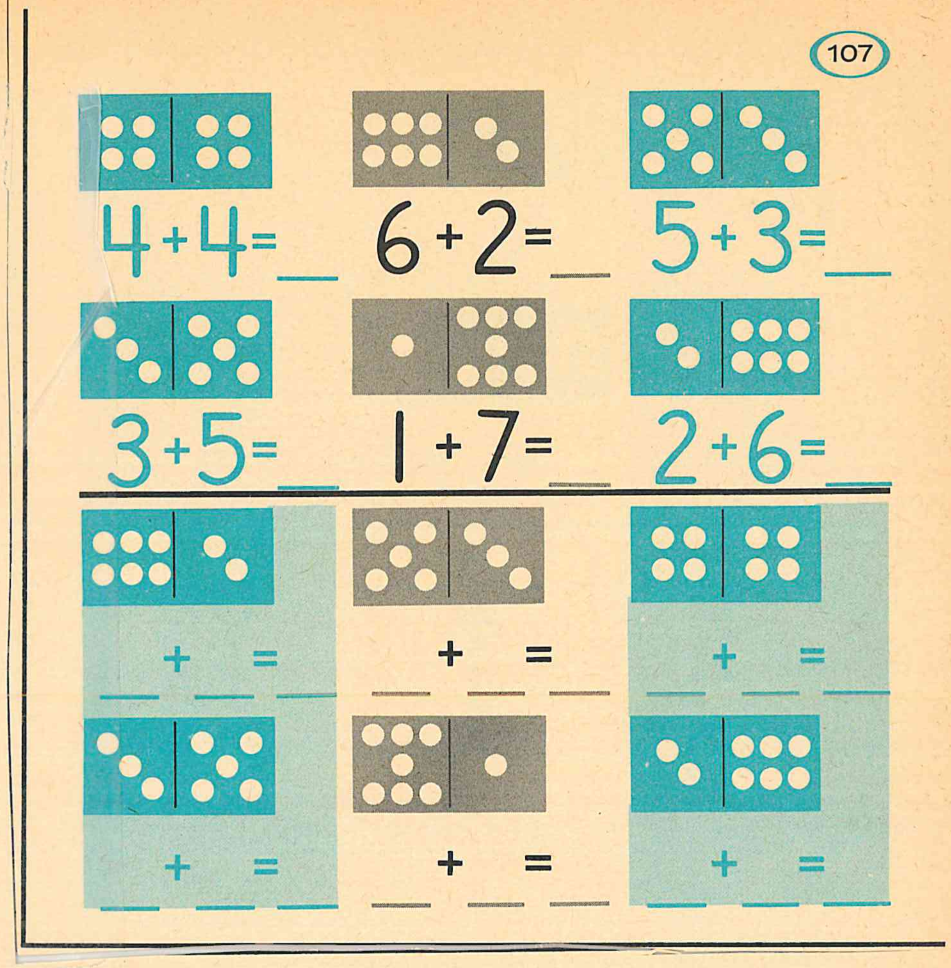
At the bottom of the page, we will write the number sentence for each domino picture. Who can tell me the first number sentence? [6 and 2 are 8.]

Now work all the examples. Write carefully. Be sure to put your numerals on the lines.

Circulate and give help as needed.

Extended Activity

Have each pupil make a set of flash cards for this set of combinations. The number sentence should be put on one side and the domino picture on the other. Have pairs of pupils practice. Have them keep a separate pile of cards that need special study.



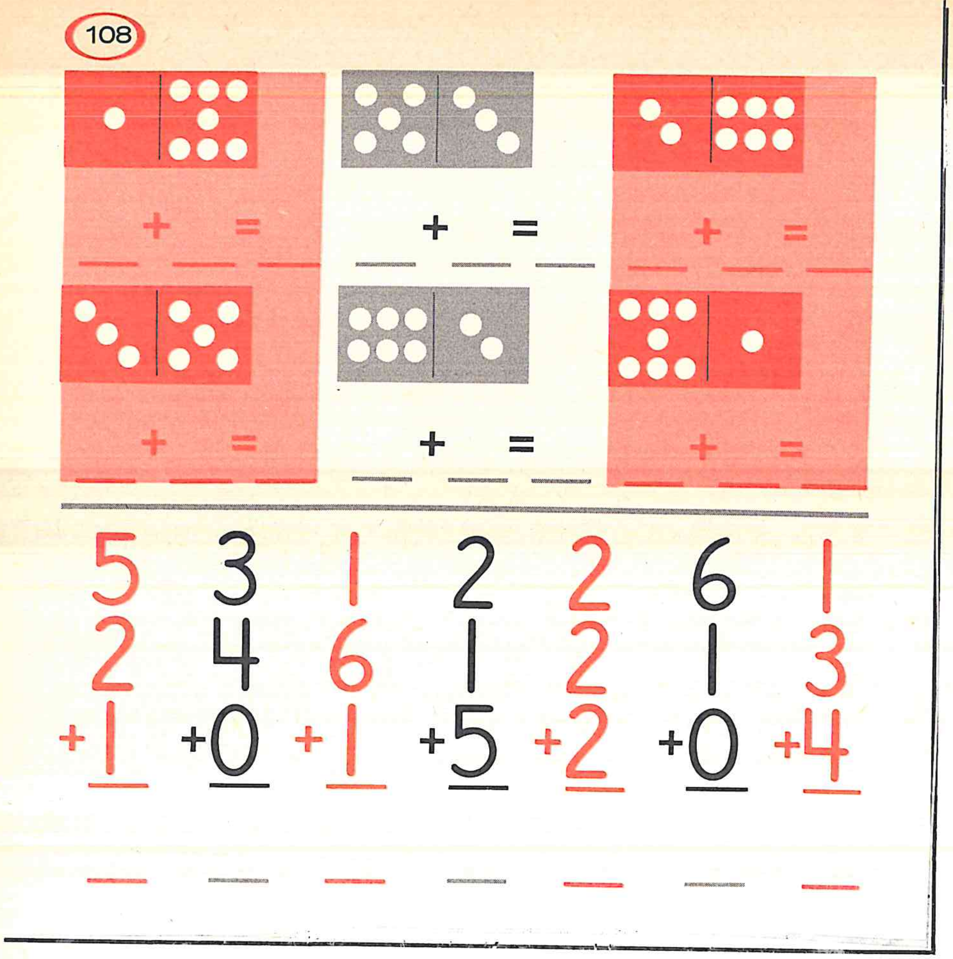
107

4 + 4 = __ 6 + 2 = __ 5 + 3 = __

3 + 5 = __ 1 + 7 = __ 2 + 6 = __

__ + __ = __ __ + __ = __ __ + __ = __

__ + __ = __ __ + __ = __ __ + __ = __


108

5	3	1	2	2	6	1
2	4	6	1	2	1	3
+1	+0	+1	+5	+2	+0	+4

108

Purpose

To provide practice with the addition facts in 8 and to extend three-addend addition.

Materials

A set of 8 counters for each pupil.

Developmental Activity

Have each pupil put 8 counters on his desk. Separate your counters into two groups like this: 0 0 0 0 0 0 0 0. Write this on the chalkboard. **What is the number sentence for these groups?** [4 + 4 = 8] Write it on the chalkboard.

What other pairs of groups can you make with your 8 counters? List the possible combinations on the chalkboard as the pupils suggest them.

Arrange them in pairs:

1 + 7 = 8	2 + 6 = 8	3 + 5 = 8	4 + 4 = 8
7 + 1 = 8	6 + 2 = 8	5 + 3 = 8	

How is each of the pairs alike? How are they different?

Procedure

Open your books to page 108.

What is the number sentence for the first domino picture at the top? [1 + 7 = 8] **We will write the sentence on the lines below the dots.** Watch and give help as needed.

At the bottom of the page we are going to add three numbers together. Do you remember how we do this? Put the first example on the chalkboard and have a pupil show how to work it.

Are we sitting tall?

Extended Activity

Provide each pupil with a number line 8 units long. Have him work out the addition combinations on the number line—for example, 4 + 4 = 8.

Do each example on the page the number line way.

Purpose

To develop the subtraction facts in the 8-group.

Vocabulary

Subtraction.

Materials

A set of 8 counters for each pupil. A flannel board.

Developmental Activity

Put 8 objects on the flannel board or chalkboard and have each pupil put 8 counters in a row in front of him. **If I take 1 of the objects away, how many are left? Check with your counters. How do we write a number sentence for this subtraction?** Write the sentence on the chalkboard as a pupil dictates: 8 — 1 = 7. Have the pupils read the number sentence as you point to each element in it. **Eight take away one leaves seven.**

Can we find another subtraction example in our 8 objects? Demonstrate this on the flannel board while each pupil arranges his counters. Repeat the previous procedure, writing the number sentence on the chalkboard for each of the seven subtraction facts in the 8-group:

8 — 1 = 7
8 — 2 = 6
8 — 3 = 5
8 — 4 = 4
8 — 5 = 3
8 — 6 = 2
8 — 7 = 1

Procedure

Open your books to page 109. This page is about subtraction with the 8-group.

Look at the first picture story. How many dots are in the box? [8] **If we take 5 away, how many will be left?** [3] **Look at the dot picture. Notice that 5 of the dots have been crossed off; 3 are left. Write the numeral 3 to finish the number sentence.**

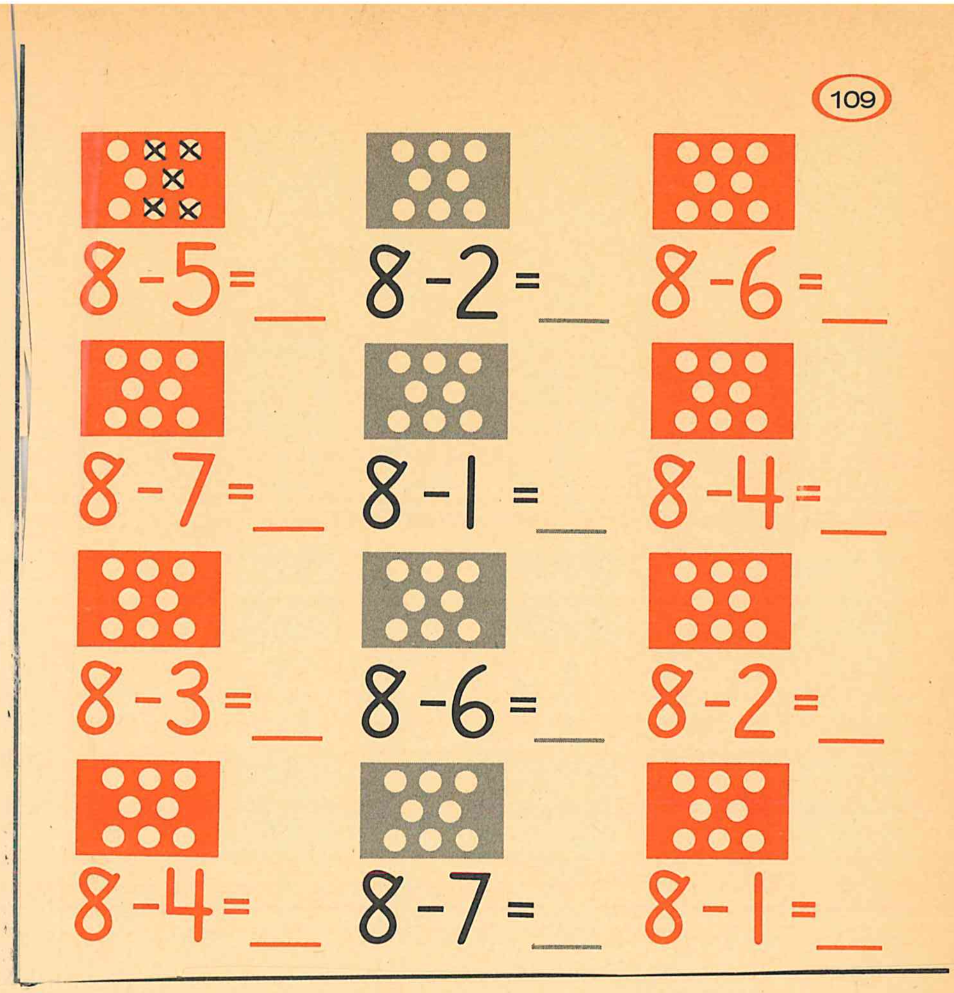
How many dots do you need to cross off or take away in the next one? [2] **How many are left?** [6] **Write the answer.**

In the rest of the examples, cross off the dots you take away. Then write the numeral that tells how many are left.

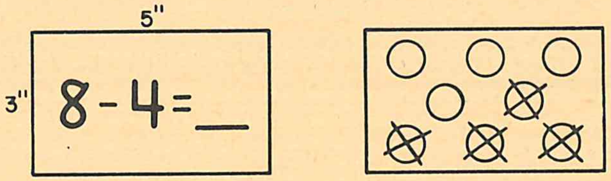
Circulate and give help as needed. Have the pupils use their counters if they have difficulty doing the examples.

Extended Activity

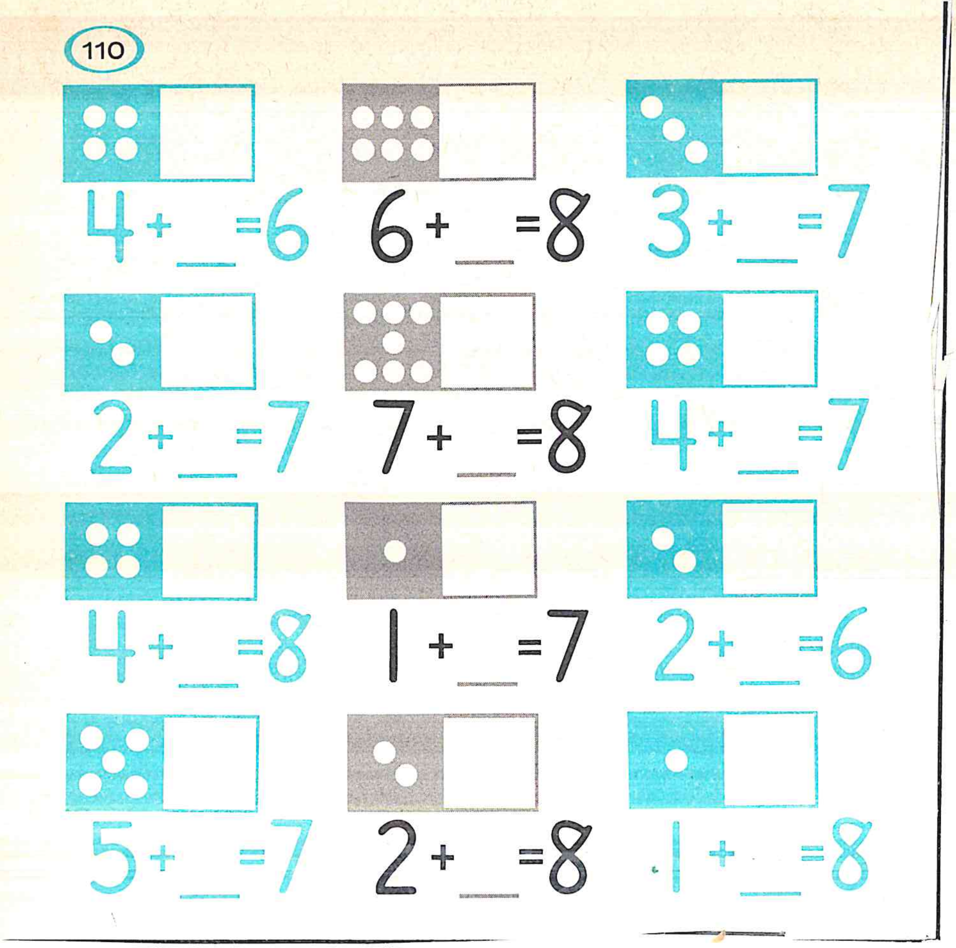
Have each pupil make a set of subtraction flash cards for the combinations in the 8-group. The number sentence goes on one side and the picture story on the other.



8 - 5 = __ 8 - 2 = __ 8 - 6 = __
8 - 7 = __ 8 - 1 = __ 8 - 4 = __
8 - 3 = __ 8 - 6 = __ 8 - 2 = __
8 - 4 = __ 8 - 7 = __ 8 - 1 = __



Have the children practice with the cards at home with their parents.



110

4 + ___ = 6 6 + ___ = 8 3 + ___ = 7

2 + ___ = 7 7 + ___ = 8 4 + ___ = 7

4 + ___ = 8 1 + ___ = 7 2 + ___ = 6

5 + ___ = 7 2 + ___ = 8 1 + ___ = 8

Purpose

To develop subtraction as finding the missing addend with the 7- and 8-groups.

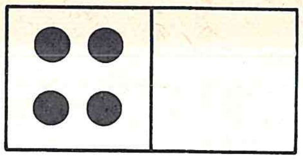
> One kind of subtraction problem requires the pupil to find *how many more*—for example, Jack has 8 marbles, Don has 5. *How many more* marbles does Don need to have as many as Jack? The number sentence is 5 + ______ = 8
>
> Mathematically, subtraction is the inverse of addition, or the process of finding the missing addend, as in this example.

Materials

A set of counters for each pupil.

Developmental Activity

Put a domino box on the chalkboard with 4 dots in one end:



How many dots do we need in this end (point) to have 6 all together? [2] Have each pupil arrange his counters to show a 4-group and a 2-group. Then combine them to show a 6-group. Repeat this procedure for each example on page 110.

Procedure

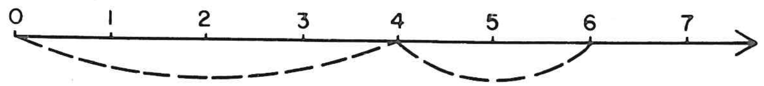
Open your books to page 110.

Look at the first example. What do we need to find? [four and how many more are six?] **What is the answer?** [2] **Draw in the 2 dots and write the numeral 2 on the line. Work the rest of the page.**

Help individuals as needed. When pupils do not know the answers, encourage them to use counters to find them. Speed practice with Dot Flash cards should help the slow performers.

Extended Activity

Provide each pupil with number lines 8 units long. Have him work each example on this page using the number line—for example, 4 + ______ = 6. Have him find the 4 point, then the 6 point.



Four and 2 more are 6.

Purpose

To test the readiness of the group to go on. This test covers the following:

1. Series—Knowledge of sixth and eighth
2. Group—Recognition of 5 and 8 as groups
   Reproduction of 7 and 8
3. Addition facts in 8
4. Subtraction facts in 8

Procedure

Open your books to page 111.

This is a review page to see how well we have learned about eight.

Look at the number 1 row with the trees. Draw a ring around the sixth tree.

Look at the number 2 row with the rockets. Draw a ring around the eighth rocket.

Look at the row with the numeral 3 in front. After each of the groups, put the numeral that tells how many are in the group.

Find the row with the numeral 4 in front. Draw a ring around 7 of the squares. Then write the numeral 7 on the line.

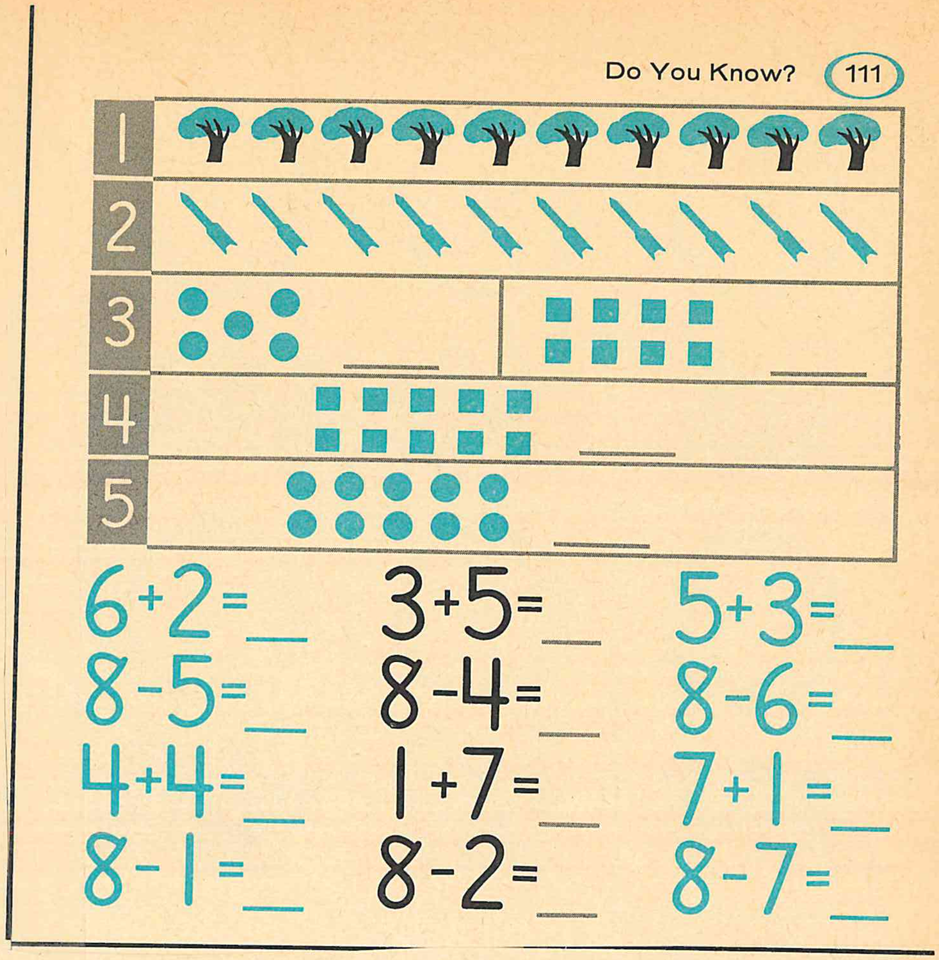
Find the row with the numeral 5 in front. Draw a ring around 8 of the balls. Then write the numeral 8 on the line.

Now work the addition and subtraction examples at the bottom of the page. Watch the signs. Are we sitting up tall?

Circulate and give help as needed. When pupils are not watching the signs, point out their mistake and have them correct it at once.

Extended Activity

Have the children take this page home and explain it to their parents.



Do You Know? 111

1

2

3 ___ ___

4 ___

5 ___

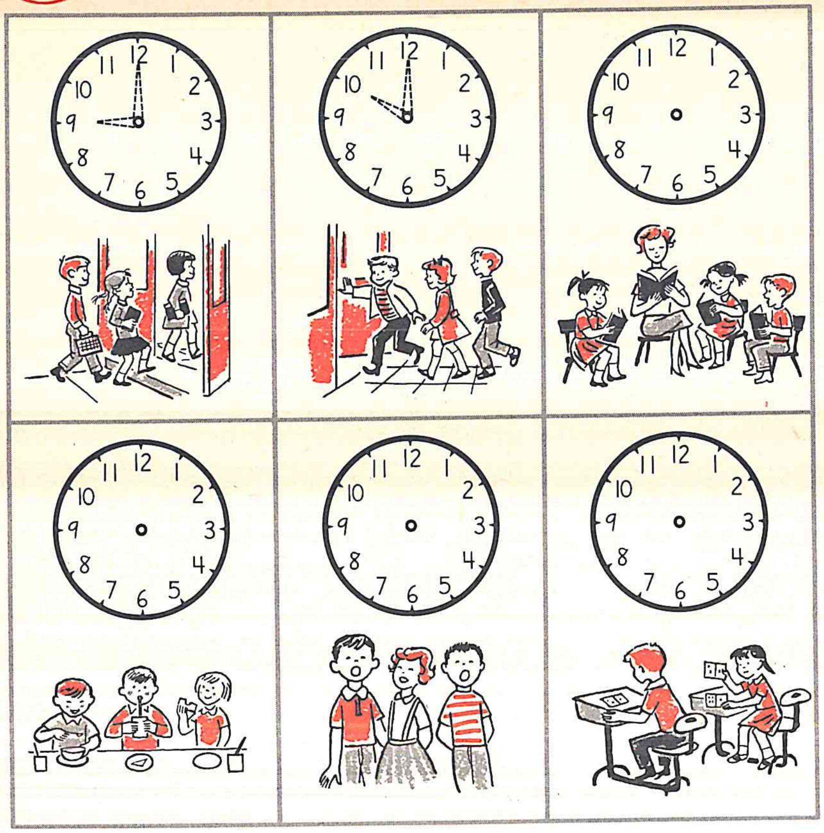
6+2=__ 3+5=__ 5+3=__

8-5=__ 8-4=__ 8-6=__

4+4=__ 1+7=__ 7+1=__

8-1=__ 8-2=__ 8-7=__

112 On the Hour



112

Purpose

To provide practice in reading the clock on the hour by relating various hours to school experiences.

Vocabulary

Clock, hands, hour, big, little, smaller, longer, o'clock.

Materials

A movable tagboard clock for each child. A large clock with movable hands for demonstration purposes.

Developmental Activity

Work with the children in small groups.

The teacher works with the large clock with movable hands. Compare its time with the school clock time. Let the children take turns moving the hands. If any children know how to tell time correctly, let them tell it.

Be sure the children discover that both hands of the clock have a function. Show that the big hand must stand straight up and point to 12 and that the little hand tells what hour it is. Let the children point the small hands on their clocks to various hours designated by the teacher or another child.

Procedure

Turn to page 112 of your books.

Where do you think these children are?

Let us look at the first picture. What are the children doing? [coming to school] **Does anyone know what the clock says?** [9 o'clock] **Move your crayon or pencil over the little hand. Move your crayon or pencil over the big hand. What does the little hand tell?**

Now look at the next picture. Do you think these children are going out for recess? [yes] **What time is it?** [10 o'clock] **Do you see the dotted line going to the hour? Can you make it a solid line?** Demonstrate on the chalkboard if children need help.

What does the next picture show us? [children reading] **Can you move the hands of your clock to make them look like this one? It says ______ o'clock.** [11] **Can you give the clock in your books hands? Try it now with your pencils.** Assist anyone who needs help.

Manipulate the hands of the demonstration clock to indicate 12 o'clock. **When both hands point to 12, it is time for lunch. The clock in the first box below should read ______.** [12 o'clock] **Let us see how many of you can make the two clock hands point to 12 o'clock. Use your pencils to do it.**

After lunch what do we do? In this picture the children are singing. Watch me move my clock to this hour. [1 o'clock] **Now make your clock look the same. What time is it?** [1 o'clock] **Show me how you can make the clock in this picture say the same thing. Use your pencil to do it.**

The last picture shows the children doing their arithmetic. It is 2 o'clock. Who would like to show me the time on the big movable clock? Everyone show this time on your small movable clocks. Now use your pencils and make the clock in the picture read 2 o'clock.

Extended Activity

Use a flannel board to provide practice. Put 6 cardboard clock faces with the hands showing 9, 10, 11, 12, 1, and 2 o'clock on the chalktray next to the flannel board. (These have strips of sandpaper on the reverse side so that they will adhere to the flannel board.)

The children take turns in selecting and matching the flannel board clock to hours of the daily program (on the hour), which are written on the chalkboard or on a chart.

A number of notched cardboard circles may be left on a "Help-Yourself" table for children to make clocks with.

Purpose

To provide practice in telling time *on the hour* by relating various hours to children's after-school activities.

Vocabulary

O'clock, hour, next, last, first, second, balloon.

Materials

A clock with movable hands for each child. Materials for making original clocks.

Developmental Activity

Engage the children in a discussion of how they spend their after-school time. Listen carefully for mention of activities that are related to a particular time. Naturally this will vary according to the family pattern of living. Draw some generalizations, if possible.

Procedure

Now open your books to page 113.

Let us take our clocks and see if we can set them to look the same as the clock in each picture.

Look at the first clock. What is the girl below the clock doing? [eating an apple] **When the clock hands point to this hour, what time is it?** [3 o'clock]

Look at the second picture at the top of the page. What is Ann doing? [playing] **Can you draw the hands of the clock to say 4 o'clock?**

Now look at the last picture in this row. How many of you have a favorite TV program? At what time do you see it? Do you know what the clock says in the picture? [5 o'clock] **Can you make the hands of your clock say 5 o'clock?**

Find the first box in the bottom row. Make your clock look like this one. What time is it? [6 o'clock] **What do most families do at this time?** [eat their evening meal] **Do you girls ever help Mother set the table?**

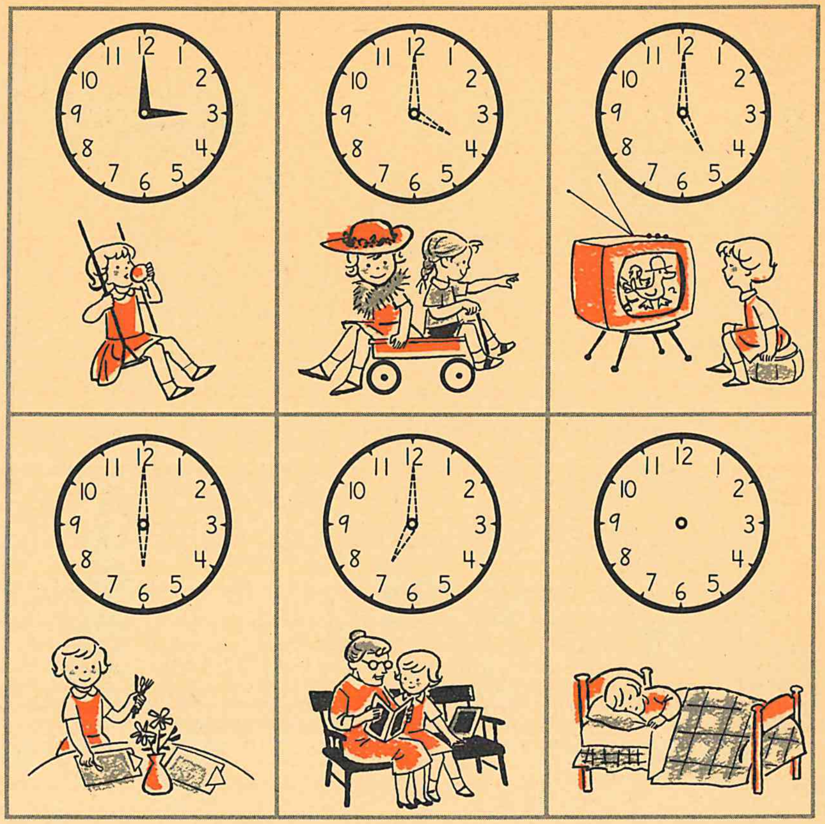
Now look in the next box. Can you move the hands on your clock to look like this? Can you finish the hands on the clock in your book? It is 7 o'clock, and Ann's grandmother is reading to Ann.

Look at the last box. Yes, it is bedtime. For many boys and girls that comes at 8 o'clock. Draw the hands on the clock in the book. Make your clock say the same thing.

Extended Activity

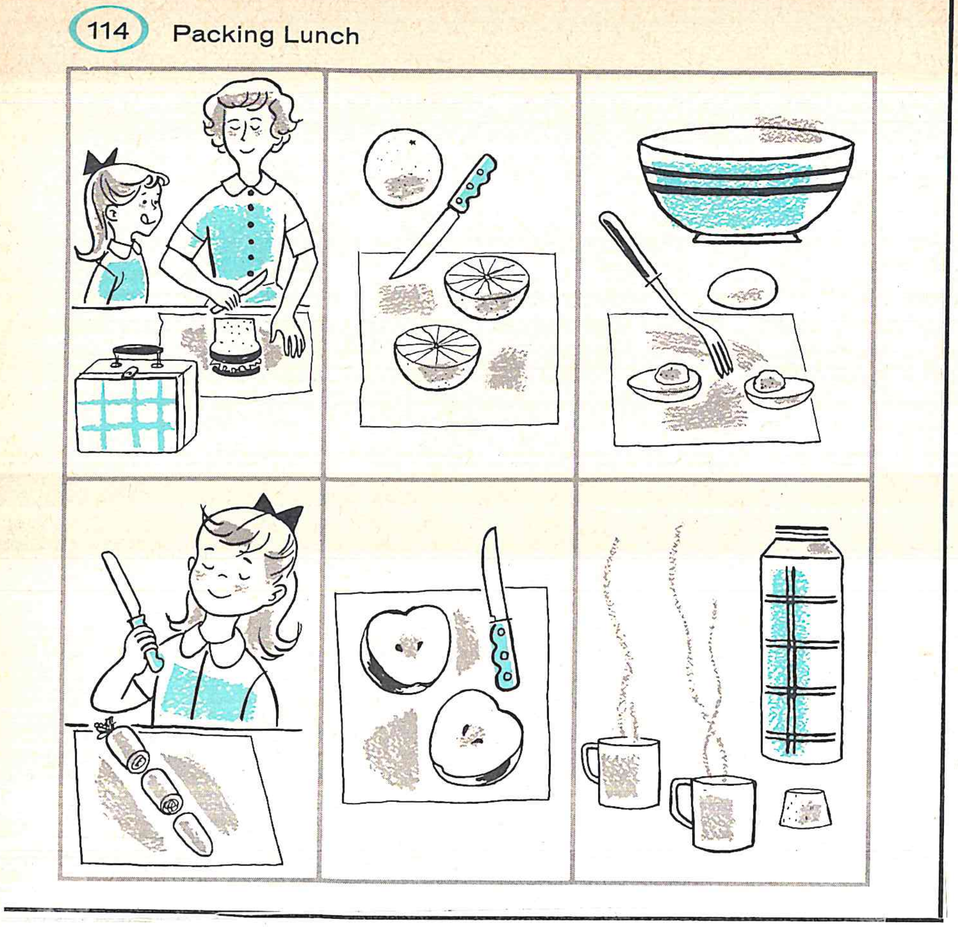
In order to see how the children can work independently, give them each a worksheet. This might picture 6 clocks. Three of them will show the time. A caption, "It is ______ o'clock" or "The clock shows ______ o'clock" is written under each.

After School 113



The other 3 clocks will have captions, such as "It is 3 o'clock." The children will draw in the clock hands to show this.

Encourage children to make a number of clocks of their own. They may be drawn to resemble a cat face, the tower of a church, rabbits, etc. They may be square boxes, round boxes, rectangular boxes, or other shapes. Supply brads and tagboard for making the clock hands. Encourage originality in clock designs.



114

Purpose

To show how fractional parts are derived from a whole and to relate this to an experience common to many children.

Vocabulary

Whole, one-half, one-fourth, one-third.

Materials

Slices of bread, butter knife, apple, carrot, sharp knife.

> Many children in every first-grade class bring their lunch from home. Some children help prepare it. Therefore, using a lunch-making situation to show how a whole can be divided into halves, thirds, and fourths should make these learnings easier. The teacher should do the cutting.

Developmental Activity

Group the children around a table. Show them whole slices of bread. The teacher demonstrates cutting a slice into two parts so that each part is the same size. Have a child put the parts together again. Demonstrate another way of cutting a slice.

Ask a child to hold up one-half of the bread slice. Ask another child to hold up the other half. Ask the children how many halves there are.

Cut an apple in half. Ask the children to show you one-half. Cut each part in half again. Now ask the children how many parts there are. [4] Some children may know that each part is one-fourth. If they do not know, tell them. Hold up one piece of apple. **How many pieces is this?** [1] **Into how many pieces did we cut the apple?** [4] **This is 1 of 4 pieces; it is one-fourth of the apple.**

Cut a carrot into thirds. Ask the children to count the pieces. Again, some children may know that each part is one-third; if not, tell them.

Procedure

Look at the first picture in the upper left-hand corner. What is Mother doing? [packing a lunch] **Pretend your pencil is a knife and "cut" the sandwich into 2 parts.** Study the ways the children "cut," and accept diagonal, vertical, or horizontal cutting as correct. **Into how many parts have we cut the sandwich?** [2 parts]

What fruit do you see in the next picture? [oranges] **Mother has cut one orange into 2 parts. Can you show how to divide the other one with your pencil so that both parts are the same size? You have divided the orange into ——— parts.** [2] **Each part is how much?** [one-half]

Look at the next picture. Do you like deviled eggs? How many whole eggs are here? [1] **How many parts?** [2] **Each part is how much of the egg?** [one-half]

Now look at the first picture in the lower left-hand corner. Into how many pieces has the carrot been cut? [3] **Do you remember how much each part is?** [one-third]

In the next picture, Mother has cut an apple into 2 halves. Can you take your pencil and show how to divide each half again. How many pieces of apple are there now? [4] **How much is each part of the apple?** [one-fourth]

What do we have in the last picture? [thermos bottle and 2 cups] **The thermos bottle holds 1 quart. Do you remember how many cups make a quart?** [4] **What part of a quart would 2 cups be?** [half] Use a quart milk bottle or a quart measuring cup to demonstrate that 2 cups of water are half a quart.

Extended Activity

Use other items to demonstrate these fractional parts. Put more emphasis on understanding than on recognizing the symbols of fractional parts, i.e., $\frac{1}{4}$, $\frac{1}{3}$, $\frac{1}{2}$, etc.

Purpose

To learn to divide groups of objects into groups of 2 and 3.

Vocabulary

Group, halves, divide, thirds, equal, equally.

Materials

Books, chairs, paper, pencils, chalk, sticks.

Developmental Activity

Before using the book give the children some experiences with real objects. For example, ask a child to divide a small stack of books into two equal groups. Give four pieces of chalk to a child and ask him to divide the chalk into two equal groups. Ask some child to arrange a group of chairs in two equal rows. Use other concrete experiences.

Objects, such as pennies, flying birds, paper dolls, may be drawn on the chalkboard. Ask some children to divide the groups into halves, or thirds by drawing a line between them. Accept either vertical or horizontal lines.

Procedure

Open your books to page 115.

Show me where the dolls are. Take your pencil and draw a line that will divide the dolls into two equal groups. How many are in each group? [1]

Now show me the balloons. Draw a line in this box that will divide the balloons into two equal groups. How many are in each group? [1]

Next look at the trucks. Who can be the first to draw a line to divide these trucks into two equal groups? Accept either a vertical or horizontal line. **How many are in each group?** [2]

Who can tell me what is in the first box in the second row? [balls] **Who will be the first to divide the balls into two equal groups?**

Then divide the blocks into two equal groups.

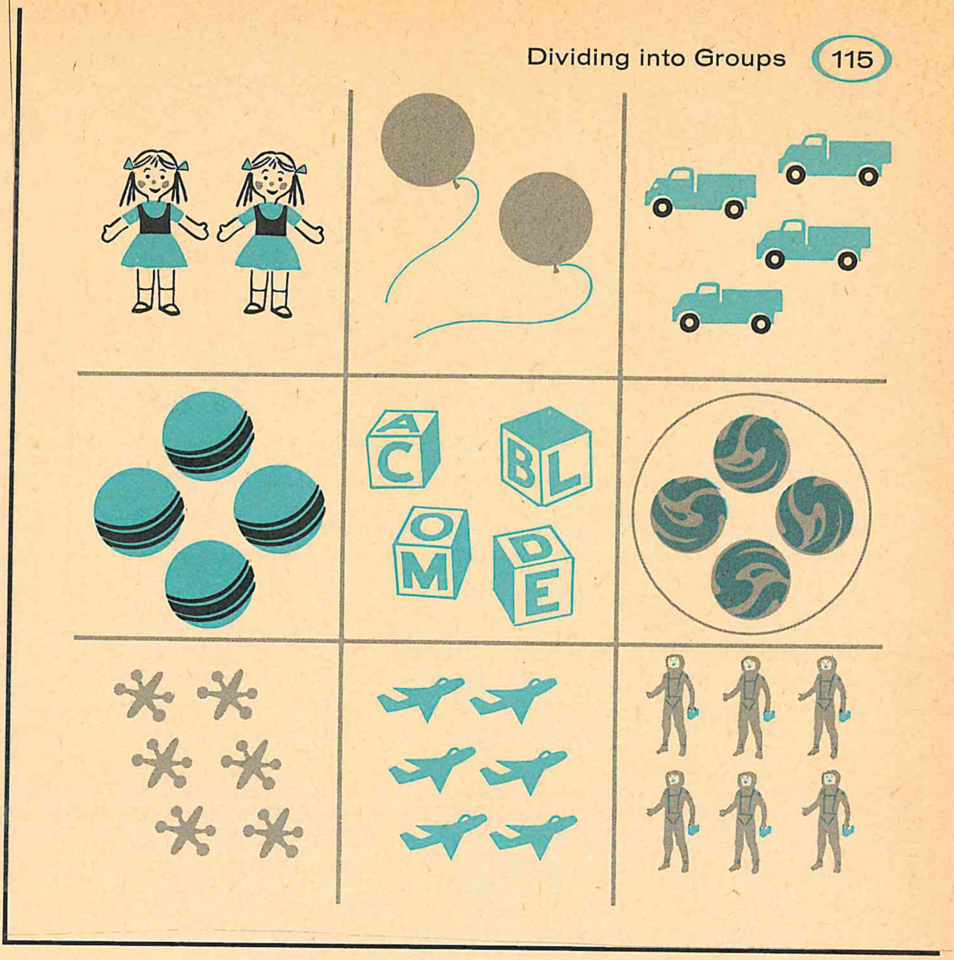
Put your pencil on the marble ring. Divide the marbles into two equal groups.

Now move to the first box in the third row. This time we will be dividing jacks into three equal groups. Draw a ring around the first two jacks. Draw a ring around the next two jacks. Draw a ring around the jacks that are left. How many is that? [2] **Now count the groups. How many groups do you have?** [3]

Now look at the airplanes. Can you divide the airplanes into three equal groups? Try it.

Give help if needed.

Try the last one yourself.

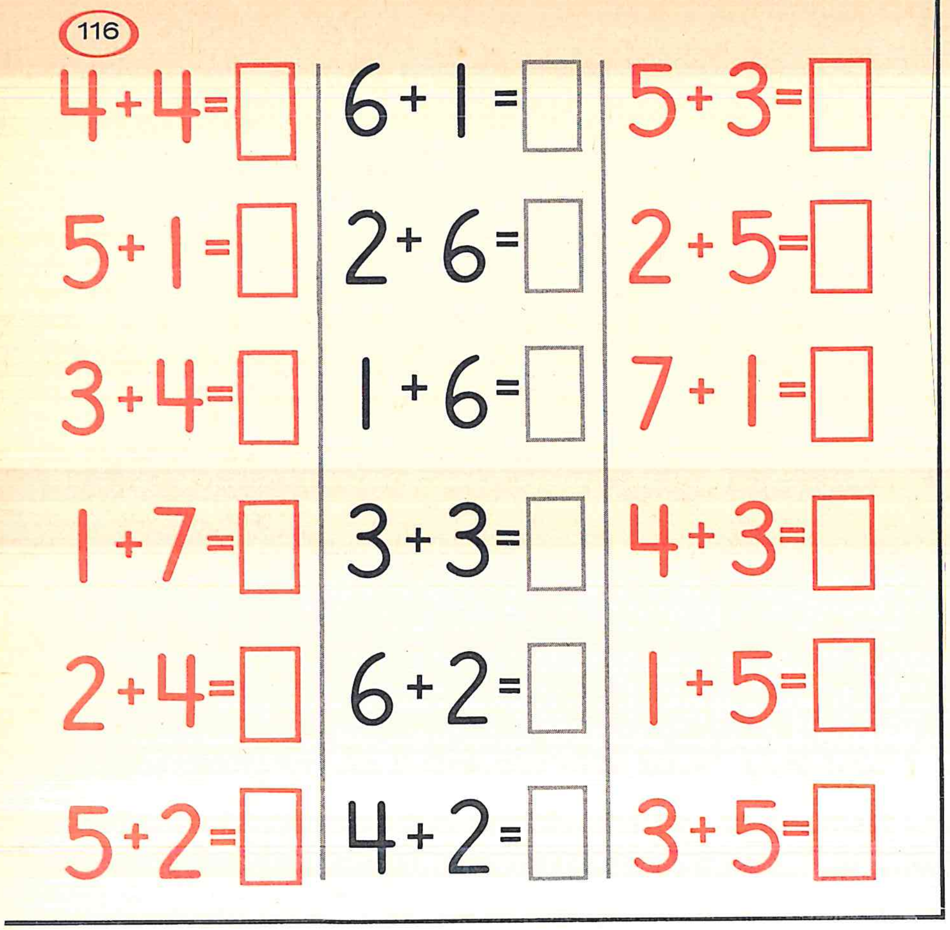


Extended Activity

Give each child a piece of newsprint. Tell him to fold it in half.

On half of the paper have the children draw a number of objects. On the other half have them draw a number of different objects.

Tell the children to divide one of the pictures into groups of 2's and the other picture into groups of 3's.



116

4+4=☐	6+1=☐	5+3=☐
5+1=☐	2+6=☐	2+5=☐
3+4=☐	1+6=☐	7+1=☐
1+7=☐	3+3=☐	4+3=☐
2+4=☐	6+2=☐	1+5=☐
5+2=☐	4+2=☐	3+5=☐

116

Purpose

To provide practice with the addition facts in 6, 7, and 8. To introduce frames.

> This review and practice session helps each pupil *to say*, *to see*, and *to write* as he thinks about addition.

Materials

A set of 8 counters.

Developmental Activity

Draw 6 circles on the chalkboard: 0 0 0 0 0 0.

Quickly have the pupils tell and show with their counters the pairs of subgroups that make 6 (1 + 5, 5 + 1, etc.). Hold a piece of chalk to make the appropriate separations of the circles on the chalkboard. Use the same procedure for 7 and 8.

Put several addition examples on the chalkboard. Place them so that children can write in the answers. Include an answer line after each example.

$3 + 3 = \_\_$
$5 + 2 = \_\_$
$7 + 1 = \_\_$

$3 + 4 = \_\_$
$5 + 1 = \_\_$
$6 + 2 = \_\_$

Call on various children to work the examples. Ask how they knew where to write the answers. **Another way of showing you where to write an answer is with a frame.** Write frame on the chalkboard. **Say it with me—frame.** Draw a frame around each of the answers to the addition examples. **When you see a frame, you know a numeral should be written in it.**

Today we will do some examples that have frames. Put this set of examples on the chalkboard:

$4 + 2 = \square$
$1 + 7 = \square$
$2 + 4 = \square$

$4 + 4 = \square$
$5 + 3 = \square$
$2 + 6 = \square$

Call on various children to work these examples.

Procedure

Open your books to page 116.

Write in the numeral to finish each number sentence. Where should you write the numeral? [in the frame] **Make good numerals.**

Circulate and give help as needed.

Extended Activity

Have each pupil take his Number Flash cards home to play Addition Number Flash with his parents.

Purpose

To provide practice with the subtraction facts in 6, 7, and 8.

Materials

A set of 8 counters.

Developmental Activity

Have each pupil take out a set of 8 counters. Have the pupils work each example on page 117 with their counters as you say it. For example: **Show me 6 counters; now take away 3 of them. Frame those that are left.** [3]

Follow this procedure for each of the combinations.

Put a set of subtraction examples on the chalkboard. Locate them so that children can write in the answers. Draw frames for the answers.

8 − 6 = □
7 − 5 = □
6 − 3 = □
7 − 4 = □
6 − 4 = □
8 − 1 = □

Have several children work the examples. Discuss how they knew where to put the answers. Then teach how to read such examples. 8 − 6 = □ is read as: Eight take away six leaves frame. Point to the frame. **Boys and girls, what does an empty frame tell us?**

Procedure

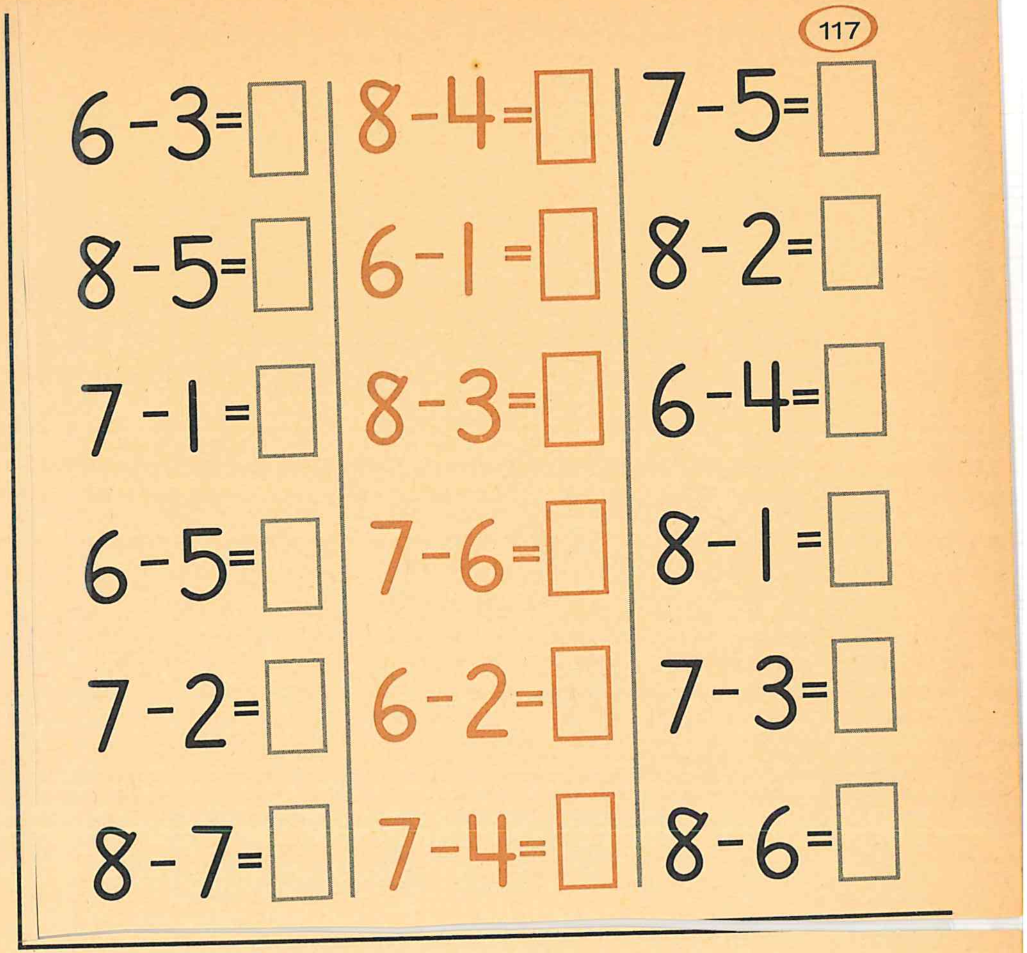
Open your books to page 117.

Where should you write the numeral to finish each number sentence? [in the frame] **Make good numerals.**

Circulate and give help as needed.

Extended Activity

(1) Have each pupil take his Number Flash cards home to play Subtraction Flash with his parents. (2) For those needing extra help and practice, pass out paper with number lines on it. Have the children work each example on the number line.

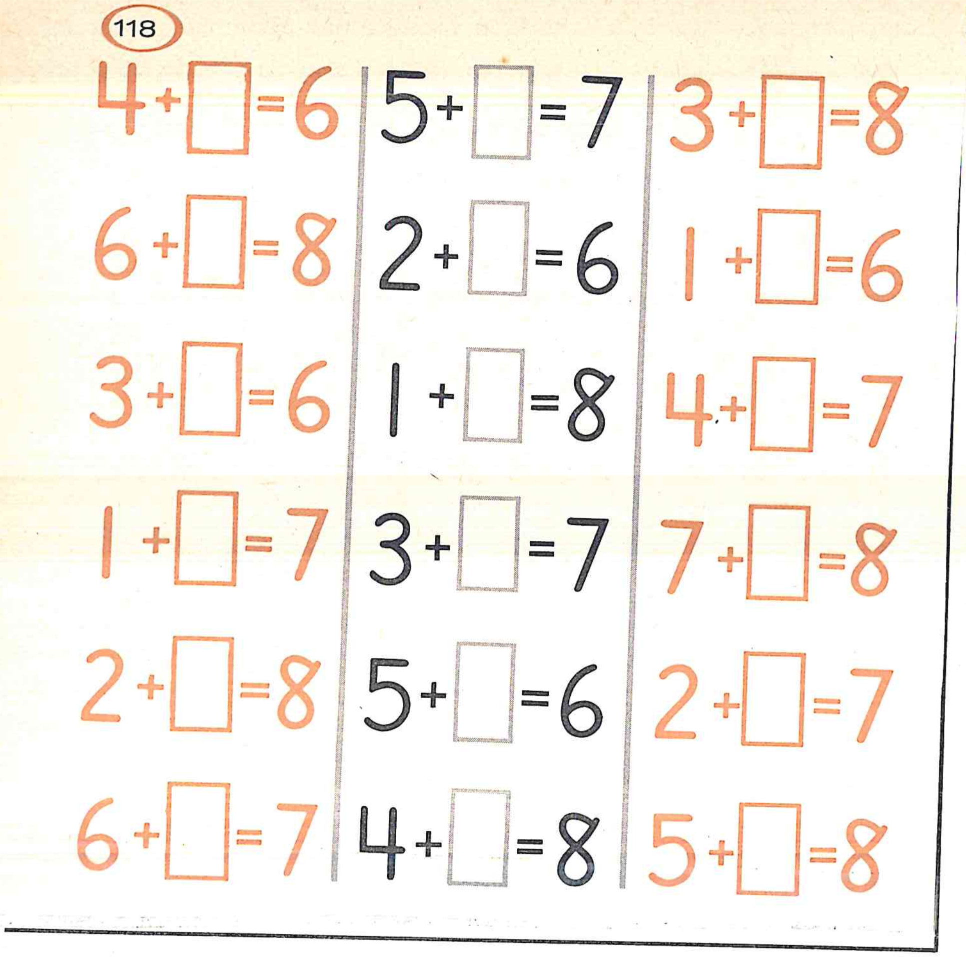


117

6 - 3 = □
8 - 5 = □
7 - 1 = □
6 - 5 = □
7 - 2 = □
8 - 7 = □

8 - 4 = □
6 - 1 = □
8 - 3 = □
7 - 6 = □
6 - 2 = □
7 - 4 = □

7 - 5 = □
8 - 2 = □
6 - 4 = □
8 - 1 = □
7 - 3 = □
8 - 6 = □


118

4+☐=6
6+☐=8
3+☐=6
1+☐=7
2+☐=8
6+☐=7

5+☐=7
2+☐=6
1+☐=8
3+☐=7
5+☐=6
4+☐=8

3+☐=8
1+☐=6
4+☐=7
7+☐=8
2+☐=7
5+☐=8

118

Purpose

To provide practice with subtraction as finding the missing addend in the 6-, 7-, and 8-groups.

Materials

A set of 8 counters.

Developmental Activity

Have each pupil take out a set of 8 counters. Have the pupils work each example on page 118 with their counters as you say it. For example: **Show me 4 counters. Four and how many make 6 counters?** The pupils would arrange their counters to show a 4-group and 2 more:

0 0 0 0
0 0

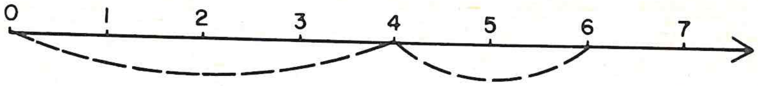
Do this for each of the combinations.

Procedure

Open your books to page 118. Write the correct numeral in the empty frame in each number sentence. Make good numerals. Are we sitting up tall?

Extended Activity

Pass out paper with number lines on it. Have each pupil use a number line to show the answer to each example on the page.



For example, 4 and 2 more are 6.

119

Purpose

To develop an understanding of "nine-ness." To become sensitive to expressions that give a relative concept of time.

Vocabulary

Nine, last year, tomorrow, ninth, reached up, six years old, score, just then, five days left, until Saturday, diamond, round, several minutes, about five minutes before, Sunday.

Materials

A Little Leaguer's outfit (borrow if possible), 4-inch squares to use as baseball diamonds.

Developmental Activity

If convenient, invite a Little League player to visit the class. He should dress in his uniform or show it to the class. He may talk to the children about Little League baseball.

Another approach to the lesson would be to have the class spend some time watching a group of older children play baseball on the school grounds. (Be sure the children stand in a safe place.)

A diagram of a baseball diamond may be placed on the chalkboard. A simple explanation of the game may be given.

The story on page vii may now be read to the group.

Procedure

Why did Uncle Louis change Louie's name? If you had been Louie, how would you have felt being mascot to a team?

On page 119 can you find the boy who has the numeral 9 on his suit? [bottom of page]

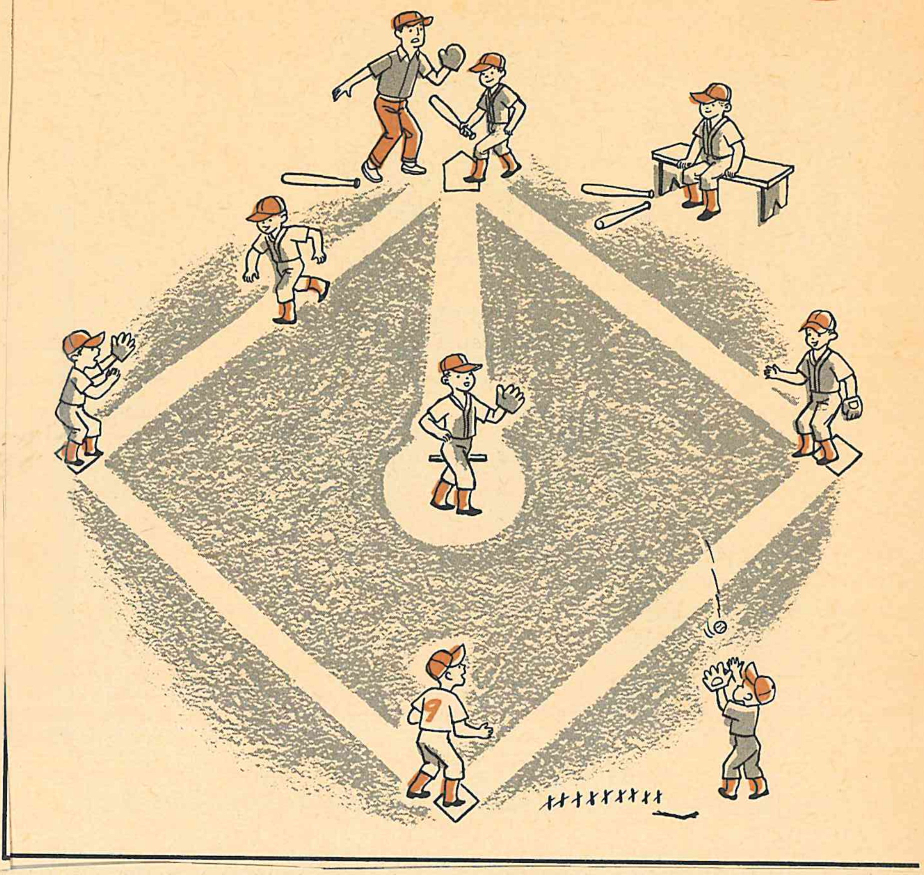
What is the shape in the center of the page? [It looks something like a square that has been turned in a special way.] **I will give you a square. See if you can turn it to look like the one on this page.** Give several children squares and observe what happens when they turn them. **Do you know what this shape is called?** [diamond] **Do you see why a baseball field is sometimes called a diamond?**

Find the boy in the center of the diamond. What does he do? [pitches] **Put an X on him.**

Do you know what is at each corner of the diamond? [a base] **Can anyone mark first base with a numeral 1? second base with numeral 2? third base with numeral 3? Try it.**

Do you know the path a boy follows in making a home run? Show me with your hands. Color the path in your book.

Who is reaching up to catch the ball? [Louie] **Put a ring around the ball he is catching.**



Find the tallest person in the group. [Uncle Louis] **Mark him with an X.**

How many boys are in the picture? [8] **Eight boys and 1 man are how many people?** [9] **Who can write it?** [8 + 1 = 9] **Who can read the number sentence?** [8 and 1 are 9.]

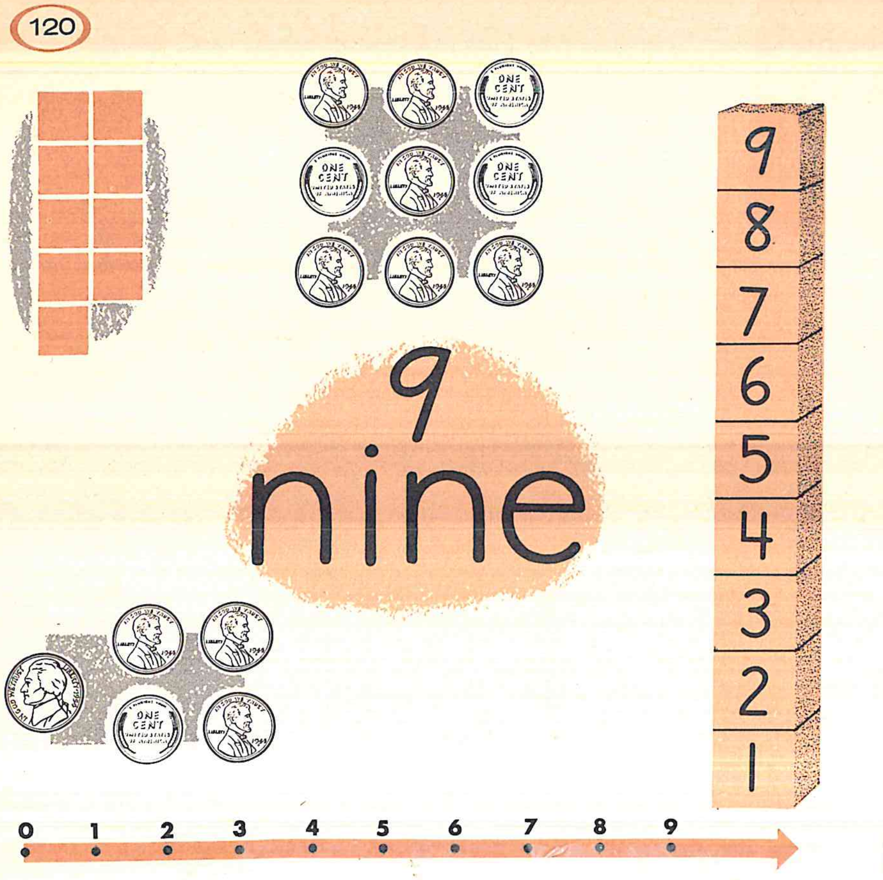
How many boys are on the diamond? [6] **How many people are not on the diamond?** [3] **How many people are there all together?** [9] **Who can say this number sentence?** [6 and 3 are 9.] **Who can say it another way?** [3 and 6 are 9.]

How many boys came to play baseball? [7] **How many more were needed?** [2] **Who can read and write this number sentence?** [7 + 2 = 9]

Extended Activity

On the chalkboard review the way in which Louie kept a record of the boys as they appeared on the field. Explain that this is called tallying and that the class might keep a record similar to this. Ask if they have ever used a stick to mark or draw in wet sand. If yard conditions permit, let them experiment with this.

Find out if any children can discover a number sentence about 9 which is not obvious on the discussion page.



120

Purpose

To develop the concept of nine as a group or set. To provide intensive analysis of the subgroup structure in 9.

Vocabulary

Number line, nine, right, left, bottom, more than, less than.

Materials

A chalkboard number line, 9 counters for each pupil.

Developmental Activity

Have the group find sets of 9 in the room. Have nine pupils line up and then form an 8 + 1, 7 + 2, etc.

Have the children take out their counters and put 9 of them in a row. Have them find how many sets of 3 each there are in 9. **How many sets of 4 each are in 9? of 5 each?** Write number sentences on the chalkboard for each example: 3 + 3 + 3 = 9, etc.

Then work out all the paired combinations. **What pairs of numbers make 9? Can you find them with your counters?** [8 + 1, 7 + 2, 6 + 3, etc.]

> This lesson could be extended to include writing all the number sentences for the addition pairs on the chalkboard. However, at this stage of development, the emphasis is on seeing the group structure with counters, rather than writing the symbols.

Procedure

Open your books to page 120.

What is the numeral in the center of the page? [9] **Frame the number word nine with your hands. Softly say it together—nine.**

Now look at the stack of blocks on the right-hand side. How many blocks tall is it? [9] **With your crayon make an X on the number 9 block. Put a ring around the number 8 block. Put a triangle on the number 7 block.**

Find the 9 pennies. Put your finger on them. What kind of pattern do they make? [3 + 3 + 3] Discuss. **With your crayon make a ring around 3 of the pennies. Make a ring around another set of 3 pennies. Put a ring around the other set of 3 pennies. Can we write a number sentence for this picture?** [3 + 3 + 3 = 9]

Look at the squares in the upper left-hand side of the page. What kind of pattern do they make? Do they come out even? Discuss. **How many patterns can you find in the squares?** [4 + 4 + 1, 2 + 2 + 2 + 2 + 1, 5 + 4, 4 + 5]

Now look at the other money. What coins do we have? [1 nickel and 4 pennies] **Draw a ring around the nickel. Now make a ring around the 4 pennies. A nickel has the same value as how many pennies?** [5] **What number sentence can we write about the money?** [5 + 4 = 9] Develop this at the chalkboard.

Now look at the number line at the bottom of the page. What is the biggest number on the line? [9] **What is the smallest number on the line?** [0]

Develop all the addition and subtraction facts using the number-line procedure used for the 7- and 8-groups.

Extended Activity

Provide scissors, paste, and old magazines. Have the children prepare the page illustrating nine-ness for their arithmetic scrapbooks.

Purpose

To develop facility in finding subgroups in 9. To teach how to write the numeral 9.

Materials

A set of counters for each pupil. A flannel board.

Developmental Activities

Put a set of 9 objects on the flannel board in a five-four pattern. Have the group arrange their sets of counters in the same pattern on their table or desk tops. **How is this 9 grouped?** Discuss.

Let pupils take turns showing different 9-patterns on the flannel board. Have each pupil organize his counters to show the new pattern.

Discussion should bring out several generalizations: (1) Pairs of groups can make 9. Can you find them? (8 all together) (2) Sets of 3 groups can make 9. How many can you find? (3) Sets of more thn 3 subgroups can make 9. How many can you find? Develop as appropriate with the particular group. As each of these grouping relations emerges, have the group develop the number sentence for it.

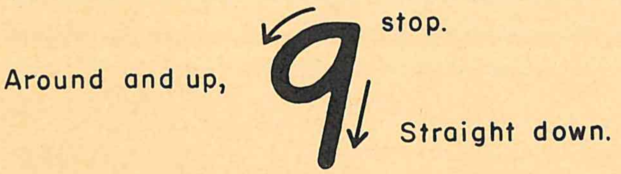
Procedure

Open your books to page 121.

What is the numeral at the top of the page? [9] **And the number word that goes with it?** [nine] **This is a page about nine.**

How many dots are in the first box? [9] **How are they grouped?** Discuss. **Do you think you can make the other dot groups in the first column look like the top one? We have done this before, haven't we?**

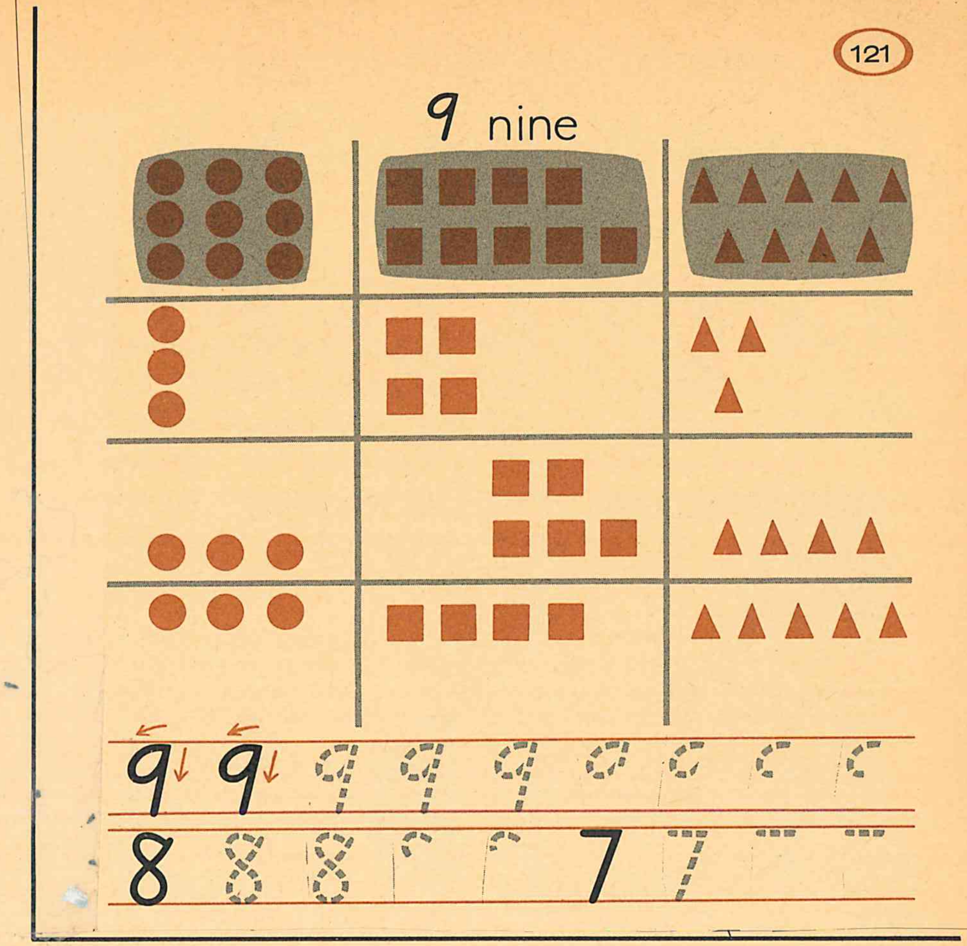
Now look at the bottom of the page. We are going to learn how to write the numeral 9. Watch how I do it. (Demonstrate on the chalkboard.)



Demonstrate several times. Have the group follow, making 9's on their desk tops with their fingers.

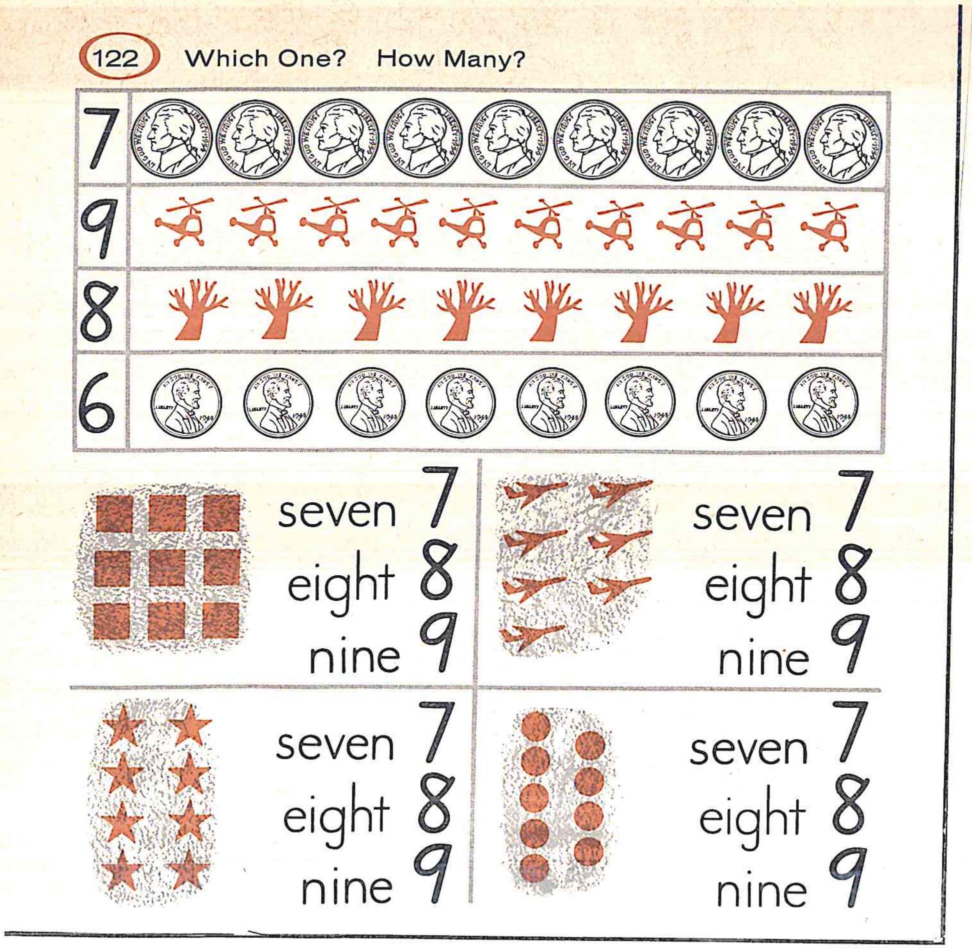
Now let's write the numerals at the bottom of the page. When you finish them, complete the 9-group patterns at the top of the page.

Circulate and give help as needed. **Are we sitting up tall?**



Extended Activity

Make a set of dot patterns for 9. Add them to the Number Group game developed on page 57.



122 Which One? How Many?

7

9

8

6

seven 7
eight 8
nine 9

seven 7
eight 8
nine 9

seven 7
eight 8
nine 9

seven 7
eight 8
nine 9

122

Purpose

To develop the idea of ninth and to develop further the subgroup relationships in 9.

Vocabulary

Ninth.

Materials

A set of 9 counters for each pupil. A flannel board.

Developmental Activity

Put a single horizontal row of 9 objects on the flannel board. **Which one is seventh? eighth? What will the word for the last one be?** [ninth] **It is number 9 in the row.**

Line up 9 counters on your desk. Point to the ninth one. Visually check each pupil's pointing as you say, **"Second, fifth, eighth, first, fourth, sixth, third, seventh."** Repeat if necessary.

Next have the pupils discover how many subgroups for 9 they can make with their counters:

0 0 0 0
0 0 0 0 0

0 0 0 0 0 0
0 0 0

0 0 0 0 0 0 0
0 0

0 0 0 0 0 0 0 0
0

What pairs (two sets) **of addition facts can be made with each of these groupings? We need a number sentence for each one.** Write the number sentences on the chalkboard as the children list them:

$4 + 5 = 9$ $6 + 3 = 9$ $7 + 2 = 9$ $8 + 1 = 9$
$5 + 4 = 9$ $3 + 6 = 9$ $2 + 7 = 9$ $1 + 8 = 9$

An important part of this lesson is the visual exploration of the addition pairs.

Next discuss the several sets of three subgroups for 9. **We have been putting two groups together to make 9. What sets of three groups can we put together to make 9. Put 9 counters in a row. Make three groups of 3 each. How can we write this number sentence?** [$3 + 3 + 3 = 9$] **Let's read it together, three and three and three are nine. Make six more number sentences with three little groups in 9. Find them with your counters first.** There are many correct solutions:

$1 + 1 + 7$, etc. $2 + 1 + 6$, etc. $3 + 1 + 5$, etc.
$4 + 1 + 4$, etc. $5 + 2 + 2$, etc. $4 + 2 + 3$, etc.

Procedure

Open your books to page 122.

On the top part of the page, look at the numeral in front of the row. Then put an X on the object in that place in the row. Let's work the first row together. Which nickel should you put an X on? [the seventh]

On the bottom part of the page, draw a ring around the number word and numeral that tell how many are in the group next to them. Now do the page.

Circulate and give help as needed. **Are we sitting up tall?**

Purpose

To review the symbols 1 through 9 and the number names for them.

Materials

A set of 5″ x 8″ teacher flash cards with the number names one through nine written on them. A set of 9 counters for each pupil. A set of numeral cards through 9 for each pupil.

Developmental Activity

Show the number-name cards in random order. Have the pupils respond by showing *how many* with their counters. This can be a quiet activity. Visually check each pupil's work before showing the next card.

As a variation, flash the number-name cards in random order. Have the pupils respond by showing the card with the correct numeral for the number name.

Procedure

Open your books to page 123.

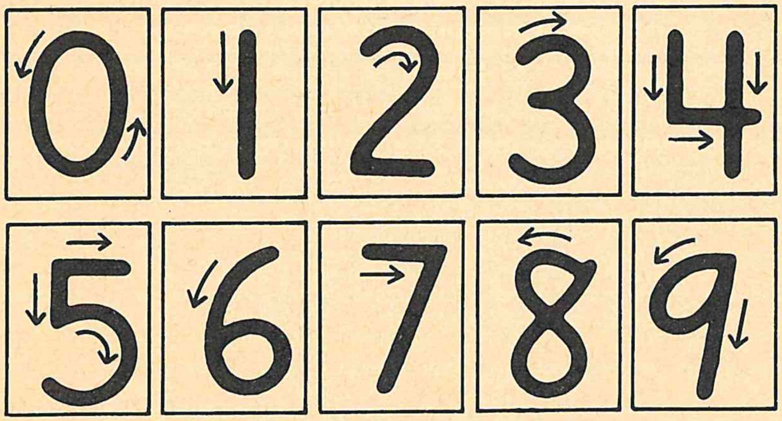
What is the numeral at the top of the first column? [2] **In the next column, can you find the number word for 2? Draw a line from the numeral 2 to the word two.**

What do you think we should do in the last column? [Draw a dot pattern for the number word next to each box.] **Work the page.**

Circulate and give help as needed.

Extended Activity

Make a set of ten 5″ x 9″ tagboard cards, one for each of the numerals 0 through 9 as follows:



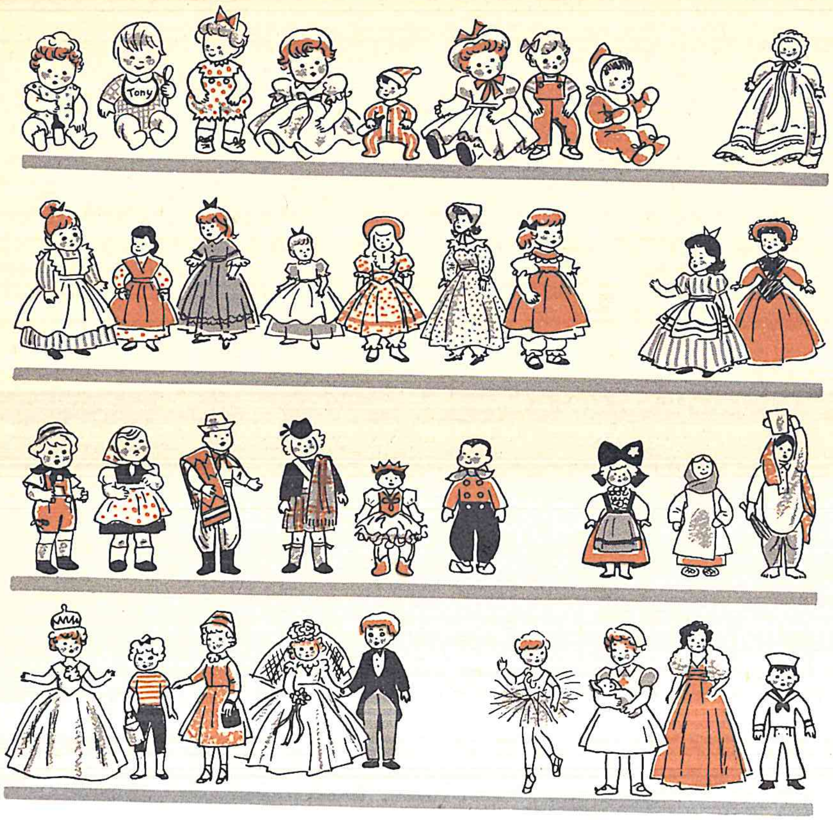
2	three	
5	five	
3	eight	
9	two	
4	seven	
7	four	
6	nine	
8	six	

Put a green dot (for *go*) at the starting place of each numeral. For the numeral 4 use two starting dots. Draw little arrows to show direction.

Give these cards to individual pupils to use as models. Have them trace the numerals with their forefinger.

The cards may also be used for reference and study by placing them along the chalktray. A *Make Good Numerals Week* might be held to help all members of the class become aware of good numeral writing.

124 A Doll Exhibit



124

Purpose

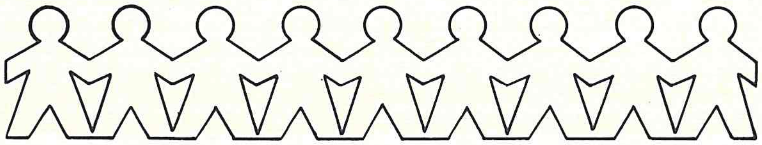
To provide situations for discovering number sentences about 9, to provide an opportunity for working with verbal problems.

Vocabulary

All together, each, how many, together, grouped, discovered, take away.

Materials

9 paper dolls for each child. The teacher may cut them out together, then clip them apart.



Procedure

(Work in small groups.)

Open your books to page 124. Explain to the children what a doll exhibit is and discuss where such an exhibit might be held. Talk about the different kinds of dolls found on each shelf. Tell the children that, by noticing how the dolls are grouped on the shelves, they will find out many things about 9.

Draw a line under the first row. How many baby dolls do you see all together? [9] **How many do you see grouped together?** [8] **How many do you see alone?** [1] **Who can give me a number sentence about the baby dolls? Can anyone write it?** [8 + 1 = 9] **Can anyone say it differently?** [1 and 8 are 9.] **Let us begin a chart on the chalkboard.** Teacher writes:

$$1 + 8 = 9$$
$$8 + 1 = 9$$

Give each child 9 paper dolls. **Count the paper dolls. How many do you have?** [9] **Take 1 away. How many are left?** [8] **Who can give me a sentence about what you did?** [9 dolls take away 1 doll leaves 8 dolls.] **Who can give me the number sentence about this?** [9 take away 1 leaves 8.] **Shall I write that on the chart? Do it.** [9 − 1 = 8.]

Now take away 8 dolls from 9 dolls. How many do you have left? [1] **Can someone make a number sentence? Can someone write it?** [9 − 8 = 1] **Who will write it on the chart?**

Now let us look at the old-fashioned dolls. How many old-fashioned dolls do you see on this shelf? [9] **How do you see them?** [7 together and 2 by themselves] **Can someone give me a number sentence about the old-fashioned dolls? Can you write it, too?** [7 + 2 = 9] **Can you write it another way?** [2 + 7 = 9] **Who would like to add this to the chart?**

Now put your paper dolls in front of you. Take 2 away. How many are left? [7] **Who can read and write this number sentence?** [9 − 2 = 7]

Now put all the dolls back on your desk. Take 7 away. How many do you have left? [2] **Who can read and write this new number sentence?** [9 − 7 = 2] **Who will add it to the chart?**

Now draw a line under the dolls from other countries. How many dolls are there all together? [9] **How do you see them?** [6 on one side and 3 on the other] **Who can write and read the number sentence about the dolls from other countries?** [6 + 3 = 9] **Who can write it another way?** [3 + 6 = 9] **Can someone add these new sentences to our chart? Do it.**

Now put the paper dolls on your desk. Take 6 away. How many are left? [3] **Write the number sentence.** [9 − 6 = 3] **Now put all the dolls back on your desk. Who knows how many to take away this time?** [3 is right.] **Write the number sentence and read it.** [9 − 3 = 6] **Shall I write these new number sentences on our chart?**

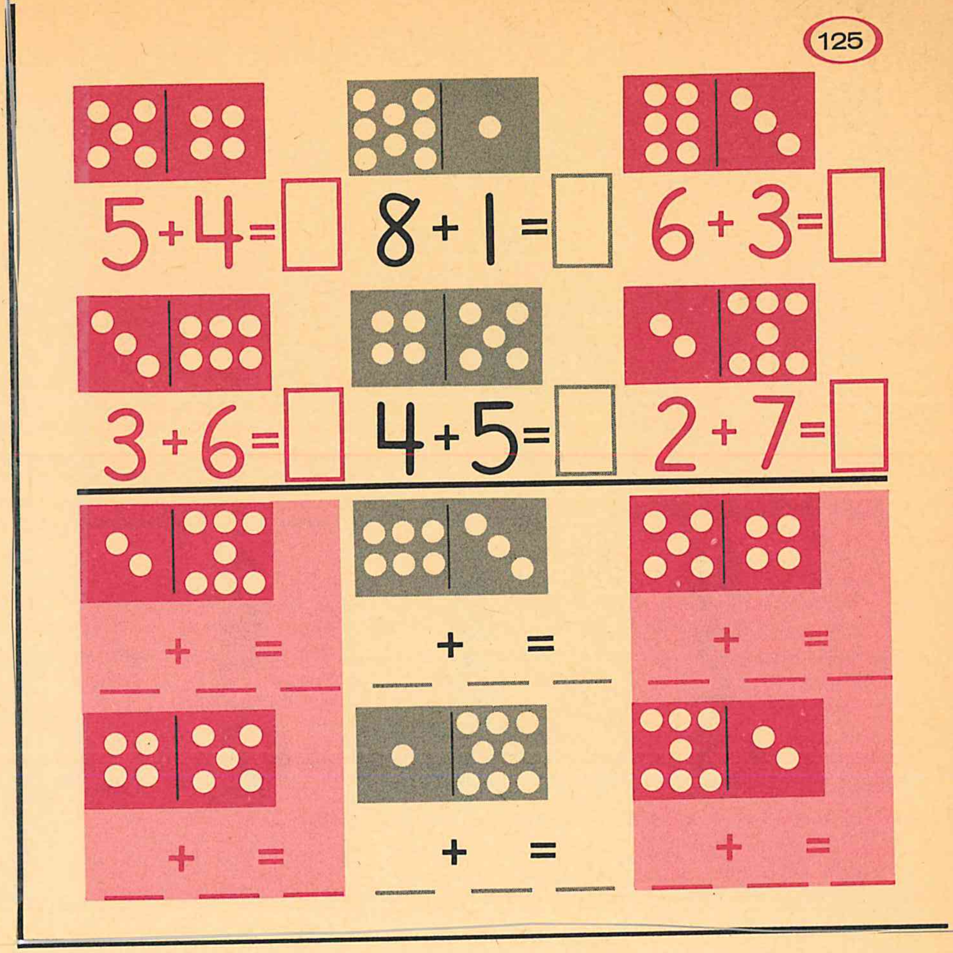
(*Continued on next page.*)

(Continued from page 124.)

Now look at the dolls in the last row. Perhaps your big sisters have dolls like these. Draw a circle around 5 dolls. Now put a line under the other dolls. Five dolls and 4 dolls are how many? [9] Who can say it another way? [4 and 5 are 9.] Now who would like to add these two number sentences to the chart?

$4 + 5 = 9$
$5 + 4 = 9$

How many can take the paper dolls and make two more number sentences? What do they say? [9 − 5 = 4, 9 − 4 = 5] Shall we add these to our long chart about 9?



125

5 + 4 = ☐ 8 + 1 = ☐ 6 + 3 = ☐

3 + 6 = ☐ 4 + 5 = ☐ 2 + 7 = ☐

___ + ___ = ___ ___ + ___ = ___ ___ + ___ = ___

___ + ___ = ___ ___ + ___ = ___ ___ + ___ = ___

125

Purpose

To develop the addition combinations in the 9-group.

Materials

9 counters for each pupil, a flannel board.

Developmental Activity

Put two subgroups of 9 on the flannel board or chalkboard—for example, 0 0 0 0 0 0 0 0 0. Combine them to get 9. Reverse the order: 0 0 0 0 0 0 0 0 0. Combine to get 9. Help the pupils discover that the order of putting together does not change the answer. Create another pair of subgroups for 9. Repeat the procedure. Have each pupil work with his own counters, too.

As pupils find new pairs of combinations, write the number sentences on the chalkboard. For example, 0 0 0 0 0 0 0 0 0 becomes $5 + 4 = 9$ and is read 5 and 4 are 9. Point to each element in the sentence as it is read. Repeat the process for each of the eight addition facts in 9:

$1 + 8 = 9$ $2 + 7 = 9$ $3 + 6 = 9$ $4 + 5 = 9$
$8 + 1 = 9$ $7 + 2 = 9$ $6 + 3 = 9$ $5 + 4 = 9$

Procedure

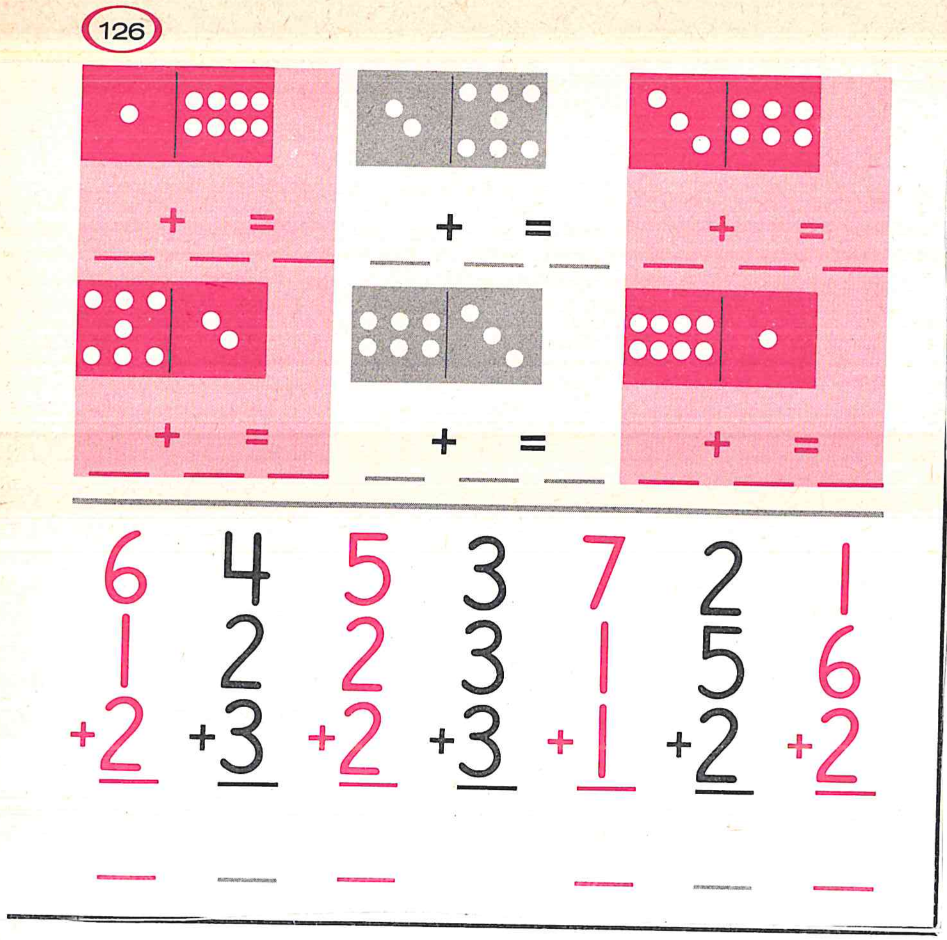
Open your books to page 125.

We are going to finish the number sentence for each of the domino pictures. Look at the first one. Who can read it? [5 and 4 are 9.] **Finish the number sentence. Then work the others. Write carefully. Be sure to put your numerals in the frames.**

Circulate and give help as needed.

Extended Activity

Have each pupil make a set of flash cards for this set of combinations. Put the number sentence on one side and the domino picture on the other. Have pairs of pupils practice with the cards. Encourage pupils to take their flash cards home to practice them with Mother and Dad.



126

Purpose

To provide practice with the addition facts in 9 and to extend three-addend addition.

Materials

A set of 9 counters for each pupil.

Developmental Activity

Have each pupil put 9 counters on his desk top. **Put your counters into two groups like this:** 0 0 0 0 0 0 0 0 0. Put this pattern on the chalkboard. **What is the number sentence for these two groups?** [5 + 4 = 9] Write it on the chalkboard. **What other pairs of groups can you make from your 9 counters?** List the possible combinations on the chalkboard as the pupils suggest them. Arrange them in pairs:

1 + 8 = 9   2 + 7 = 9   3 + 6 = 9   4 + 5 = 9
8 + 1 = 9   7 + 2 = 9   6 + 3 = 9   5 + 4 = 9

How is each of the pairs alike? How are they different?

Procedure

Open your books to page 126.

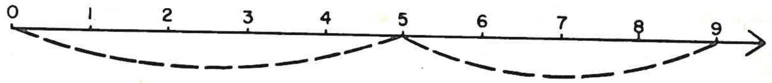
What is the first example? [1 + 8 = 9] **Write the sentence on the lines below the dots.** Circulate and give help as needed.

At the bottom of the page, we are going to add three numbers together. Do you remember how we do this? Put the first example on the chalkboard and then have a pupil do it.

Circulate and give help as needed.

Extended Activity

Provide each pupil with a worksheet with number lines 9 units long. Have him work out the addition combinations on the number lines—for example, 5 + 4 = 9.



Purpose

To develop the subtraction facts in the 9-group.

Vocabulary

Subtraction.

Materials

A set of 9 counters for each pupil. A flannel board.

Developmental Activity

Put 9 objects on the flannel board or chalkboard and have each pupil put 9 counters in a row in front of him. **If I take away 1 of the objects, how many are left? Do it with your counters. How do we write a number sentence for subtraction?** Write the sentence on the chalkboard as a pupil dictates: 9 − 1 = 8. Have the pupils read the number sentence as you point to each element in it. "Nine take away one leaves eight."

Can we find another subtraction example in our 9 objects? Demonstrate on the flannel board while each pupil arranges his counters. Repeat the previous procedure, writing the number sentence on the chalkboard for each of the eight subtraction facts in the 9-group:

9 − 1 = 8
9 − 2 = 7
9 − 3 = 6
9 − 4 = 5
9 − 5 = 4
9 − 6 = 3
9 − 7 = 2
9 − 8 = 1

Procedure

Open your books to page 127. This page is about subtraction with the 9-group.

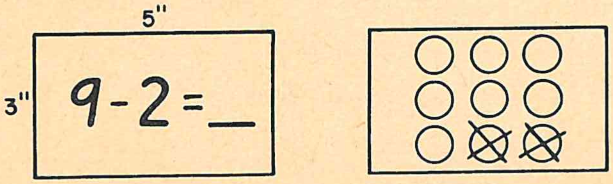
Look at the first picture story. How many dots are in the box? [9] **If we take 6 away, how many will be left?** [3] **Look at the dot picture. Notice that 6 of the dots have been crossed off, 3 are left. Write the numeral 3 to finish the number sentence.**

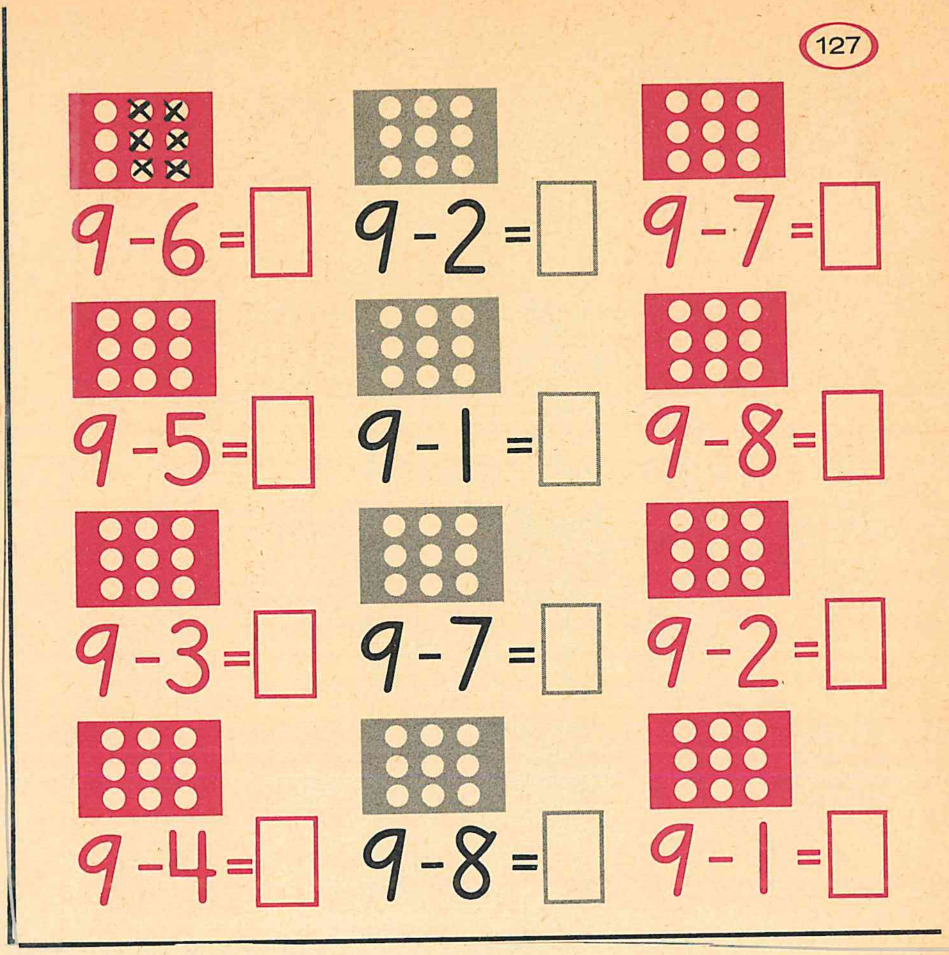
How many dots do you need to take away or cross off in the next box? [2] **How many are left? Write the answer. Work the rest of the page.**

Circulate and give help as needed. Have the pupils use counters if they are having difficulty.

Extended Activity

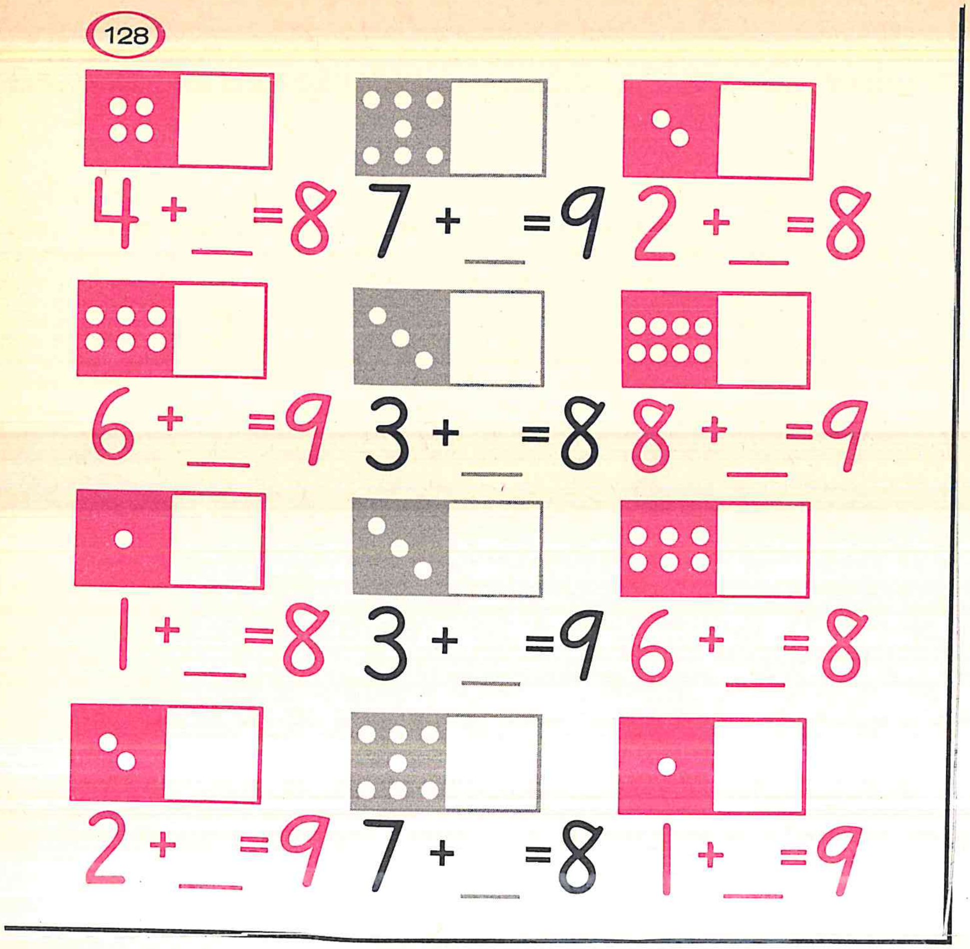
Have each pupil make a set of subtraction flash cards for the combinations in the 9-group.





9-6=☐ 9-2=☐ 9-7=☐
9-5=☐ 9-1=☐ 9-8=☐
9-3=☐ 9-7=☐ 9-2=☐
9-4=☐ 9-8=☐ 9-1=☐

Put the number sentence on one side and the picture story on the other. Suggest that the children practice at home with Mother and Dad.


128

4 + ___ = 8
7 + ___ = 9
2 + ___ = 8
6 + ___ = 9
3 + ___ = 8
8 + ___ = 9
1 + ___ = 8
3 + ___ = 9
6 + ___ = 8
2 + ___ = 9
7 + ___ = 8
1 + ___ = 9

128

Purpose

To develop subtraction as finding the missing addend with the 8- and 9-groups.

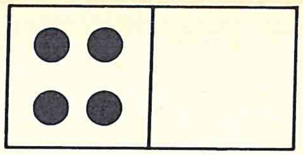
> Many subtraction examples require an additive approach for a logical solution—for example: Mary has 5¢ and wants to buy a 7¢ tablet. How many more pennies does she need? The number sentence is 5 + ______ = 7.

Materials

A set of counters for each pupil. A number line 9 units long for each pupil.

Developmental Activity

Put a domino box on the chalkboard with 4 dots in one end:



How many more dots do we need in this end (point) **to have 8 all together?** [4] Have each pupil arrange his counters to show a 4-group and a 4-group. Then he combines them to show an 8-group. Repeat this procedure for each example on page 128.

Procedure

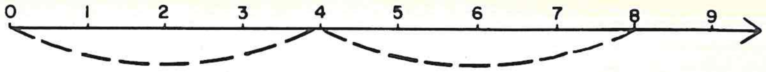
Open your books to page 128.

Look at the first example at the top of the page. What do we need to find? [4 and how many more are 8?] **What is the answer?** [4] **Draw in the 4 dots and write the numeral 4 on the line. Work the rest of the page. Raise your hand if you want help.**

When pupils do not know the answers, encourage them to use counters. Speed practice with Dot Flash cards should help the slow responders.

Extended Activity

Give the children worksheets with number lines 9 units long. Have them work each of the examples on the page using the number line—for example, 4 + ______ = 8. **Find the 4 point, then find the 8 point.**



Four and 4 more are 8.

Purpose

To review the addition facts in 8 and 9.

Materials

A set of 15 flash cards with the addition facts in 8 and 9.

Developmental Activity

Quickly review the flash cards with the class.

Procedure

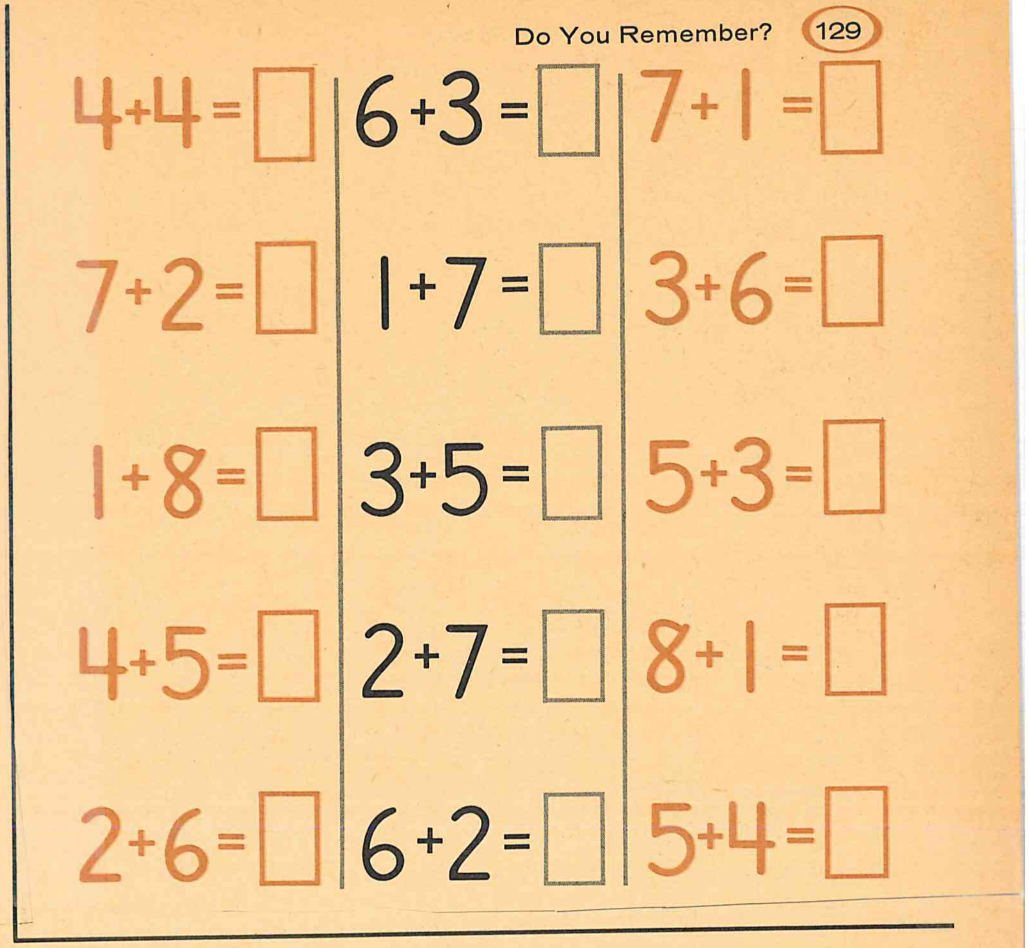
Open your books to page 129.

These are addition examples. Let's see how well we can do them. Write carefully. Begin now. Are we sitting up tall?

Circulate and give help as needed. When all the children have finished, read the answers aloud. Read each answer slowly twice. Have the pupils put a ring around each wrong answer.

Extended Activity

Have the pupils take the page home to share with their parents.



Do You Remember? 129

$4+4=\square$

$7+2=\square$

$1+8=\square$

$4+5=\square$

$2+6=\square$

$6+3=\square$

$1+7=\square$

$3+5=\square$

$2+7=\square$

$6+2=\square$

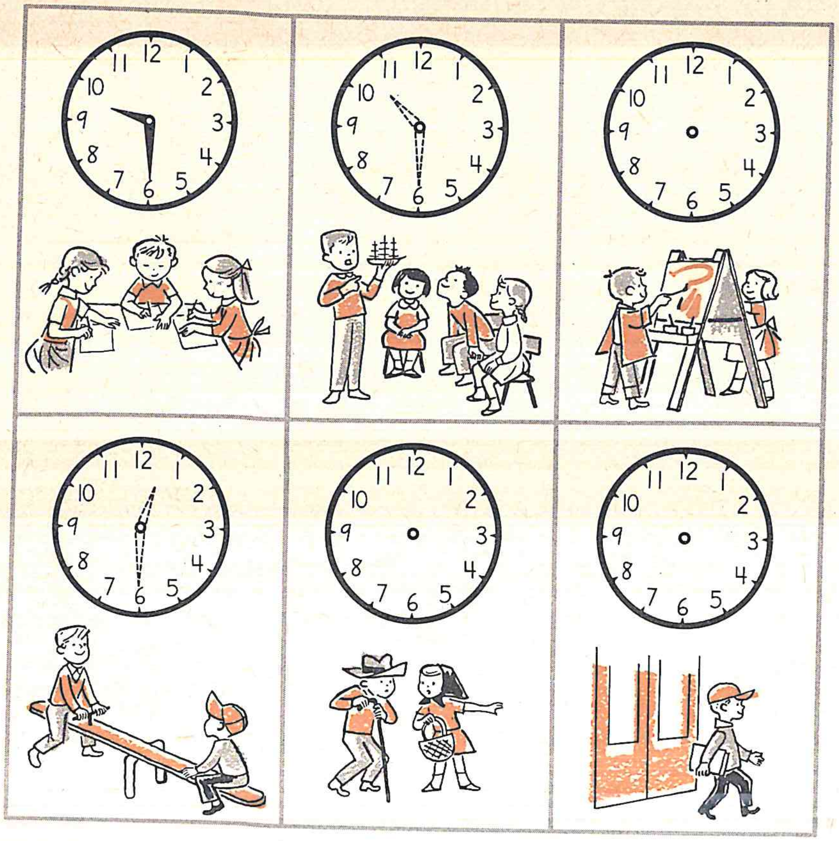
$7+1=\square$

$3+6=\square$

$5+3=\square$

$8+1=\square$

$5+4=\square$



130

Purpose

To show children how to read time on the half hour by relating the time to activities within the classroom.

Vocabulary

Half hour, long hand, short hand, first, half past, pointing.

Materials

Use a clock with movable hands to demonstrate. Use small cardboard clocks children have previously made. Use a worksheet comparable to that in the lesson on page 113.

Developmental Activity

Work in small groups.

Today we are going to learn something new. We are going to learn to read the clock on the half hour.

Where is the long hand when it is ——— o'clock? [on 12] **Where is the short hand?** [on the numeral which tells the hour] **Does anyone know where the long hand is when it is half past an hour?** [on 6] **The short hand is a little past the numeral that shows the hour.**

If I wanted to show half past 9, I would move the hands to look like this. Demonstrate. **If I wanted to show half past 10, I would move the hands to look like this.** Demonstrate.

Would someone like to take the clock and show half past 11? Would someone else like to show half past 12? Continue until all hours have been shown and/or everyone has had a turn.

Procedure

Now open your books to page 130. Let us see what these children are doing.

Let us look at the first box. Look at the children. What are they doing? [writing at tables] **Who can tell me what time it is?** [half past 9] **Who can move the hands on our clock to make them look like those in the picture?**

Now let us look at the next box. What are the children doing? [having Show and Tell.] **There are dotted hands on the clock. Can you make the long hand and short hand with your pencils? Try it. What time is it?** [half past 10]

Now let us look at the last picture in the first row. The children are doing what? [painting at their easels] **Now take your pencils, and we will put in the hands. Start from the center** (point to it) **and make the long hand. If it is half past an hour, the long hand points toward 6. If I say it is half past 11, where would the short hand point?** [between 11 and 12] **Make the short hand with your pencil. Start from the center.**

Now point to the first box in the next row. These children have had their lunch. What are they doing now? [playing outdoors] **Who can tell us where the long hand is pointing?** [to 6] **Who can tell where the short hand is pointing?** [between 12 and 1] **Now take your pencils and make the clock read half past 12.**

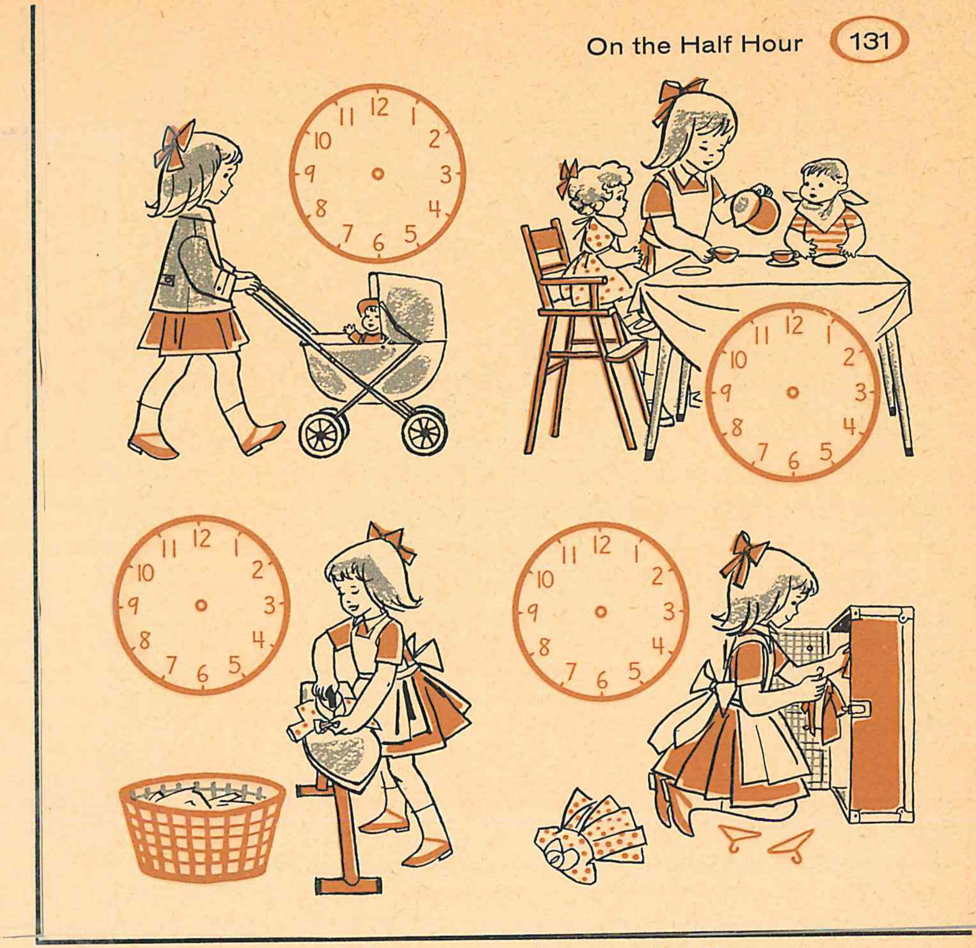
In the next picture the children are acting out a story. How can you tell? It is half past 1. Who can make the clock read half past 1 without help from me? Give the children an opportunity to work without help but give clues if the children need them.

In the last picture who can guess where the boy is going. It is half past 2. Can everyone make the clock hands point to half past 2?

Extended Activity

For a quick review give the children the clocks with movable hands. Ask them to move the hands to times designated by the teacher or a child. Relate this, if possible, to actual activities that happen on the half hour.

Prepare a worksheet, similar to the one suggested on page 113, for the children. Ask them to work on it independently. This gives an additional opportunity to find out how many understand the developmental lesson.



On the Half Hour 131

Purpose

To provide additional practice in reading the clock on the half hour. To recognize the form "2:30 p.m." To relate time to play activities interesting to children.

Vocabulary

Two-thirty (2:30), afternoon, half past, 2:00 p.m., hour, o'clock.

Materials

Worksheets with clock faces marked on the half hour.

Developmental Activity

Work in small groups.

When I say Saturday, what do you think of? [It is play day.] **What are some things you like to do on Saturday?** Take time to listen.

Procedure

Open your books to page 131.

This is the way a little girl named Ann spent some time one Saturday afternoon. When we say afternoon, we often write it like this: *p.m.* Write p.m. on the chalkboard.

Let us look at the first picture. What is Ann doing? Let us imagine it is half past 2. Do you remember where the long hand goes when it is half past an hour? [on the 6] **Put your pencil on the center dot and make a long hand pointing toward 6. Where does the short hand go?** [between 2 and 3] **Draw in the short hand. Now read the time.** [half past 2] **Sometimes we say 2:30 p.m., and we write it like this:** 2:30 p.m. (Write it on the chalkboard.)

Give me a sentence about what Ann is doing at 2:30 p.m. Write the sentence on the chalkboard in a way similar to this: At 2:30 p.m. Ann goes for a walk with her dolly.

Now let us look at the next picture. What do you think Ann and her dolls are having? [a tea party] **It is half past 3. Who can show half past 3 on the clock? Do it.** Give help if needed. **We could say 3:30 p.m., too. Tell me a sentence about what Ann is doing at 3:30.** Write this sentence on the board. (*Sample:* At 3:30 p.m. Ann has a tea party.)

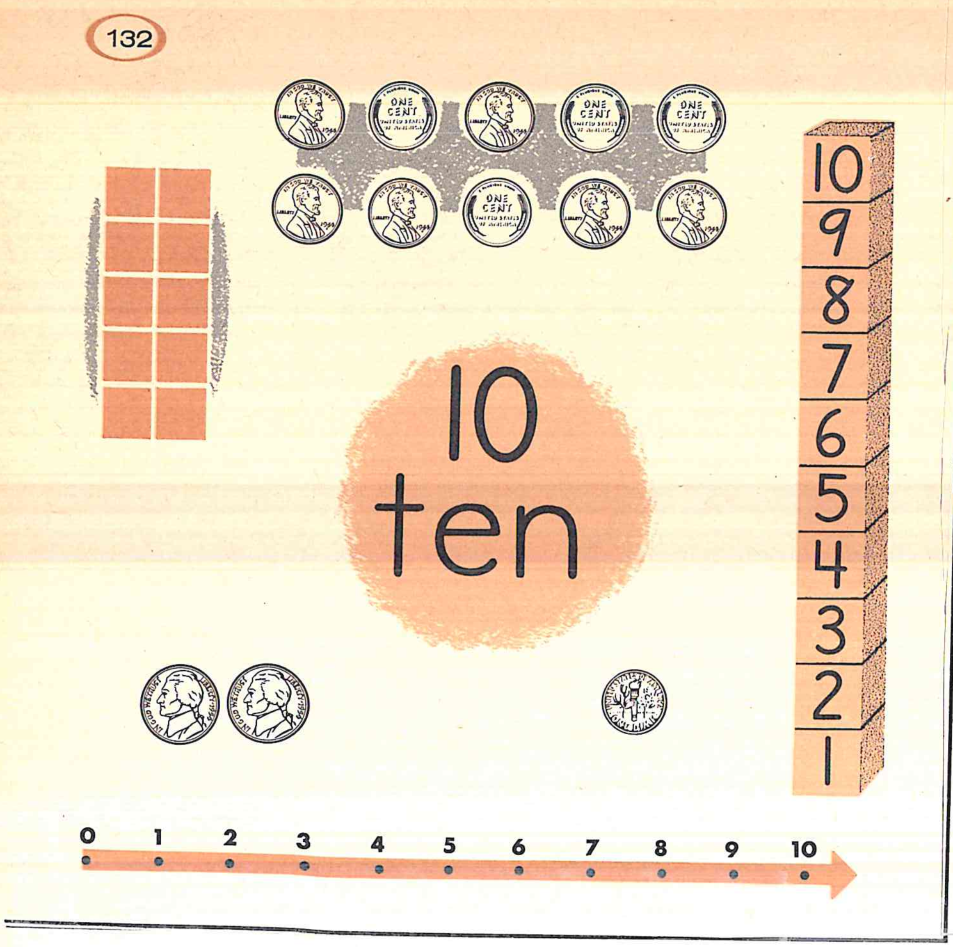
Mother let Ann wash and iron her dolly's clothes this Saturday afternoon. What time do you suppose it was? Suggest half past 4. **Who can make the hands on the clock say half past 4? Do it. Who can say half past 4 another way?** [4:30 p.m.] **Shall I add another sentence about Ann and her dolly? Who can tell me one?** (*Sample:* Ann irons her dolly's clothes at 4:30 p.m.)

Now look at the last picture. What is Ann doing [putting her doll's clothes away] **Do you think Ann has had a good time playing today? I believe Ann's mother is calling her for dinner since the time is now half past 5. Everyone, mark the last clock to read half past 5. We could say 5:30 p.m. Now suppose we add one more sentence to the others. Who can tell me what to write?**

Extended Activity

Give each child a sheet of paper with clocks marked on the half hour. Leave a lot of space beneath the clocks and suggest that the children fill it with pictures of some things they often do on Saturday.

An original worksheet illustrating the use of *a.m.* and suggesting activities boys might do could extend this learning experience.



132

Purpose

To develop the concept of ten as a group or set. To extend the understanding of the "one-by-one" structure of the number system (Ten is 1 more than 9, etc., and 9 is 1 less than 10, etc.).

Vocabulary

Number line, ten.

Materials

A chalkboard number line and 10 counters for each pupil.

Developmental Activity

Have the group put 10 counters in a row.

Separate your counters into two groups of the same size. We say these groups are equal to each other. How many counters are in each group? [5] **Who can say the number sentence?** [5 and 5 are 10.]

Count out 9 of the counters. Nine and how many more make 10? [1] **Ten is 1 more than 9.**

How many more than 8 is 10? [2] **Show me with your counters.**
How many more than 7 is 10? [3] **Show me with your counters.**

Procedure

Open your books to page 132.

What is the numeral in the middle of the page? [10]

Where is the number word **ten****? Frame it with your hands. Let's read it together—ten.**

How many pennies are at the top of the page? [10] **Can we count them by 2's?** [2–4–6–8–10] **What is another way to say 10 pennies?** [10 cents, a dime] **Is a dime the same as 10 pennies?** Use discussion to develop the idea that 10 pennies and a dime are not the same, but that they have the same value.

Can you find a dime on the page? Draw a ring around the dime.

What other money is shown on the page? [2 nickels] **How much is that?** [10¢] **Is a dime the same as 2 nickels?** [no] **Do 2 nickels have the same value as a dime?** [yes] **Two nickels have the same value as ______ pennies.** [10] **A dime has the same value as ______ pennies.** [10]

Who can say the number sentence for how much 2 nickels make? [5 and 5 are 10.] Draw on the chalkboard.

5¢ 5¢ = 10¢

Point to the ¢ sign. **How do we read this sign?** [cent, cents] **Have the group read the sentence together.**

> When we write a number sentence, we write only the numerals; therefore, the number sentence is written 5 + 5 = 10.

Now look at the squares at the top of the page. What kind of pattern do they make? Do the squares come out even? [yes] **Is 10 an odd or even number?** [even] **Count the squares by 2's.** Continue an appropriate discussion with the children.

Now look at the number line at the bottom of the page.

Use the chalkboard number line as a reference. **How many dots are on the number line? How many more than 9 is 10? Which is more, 7 or 10? How many more? Use the number line to find out.** Repeat with 10 and other numbers. **Which is the smallest number on the line?** [0] **the largest?** [10] **Draw a ring around the 0 and the 10.**

How many blocks are in the stack at the right side of the page? [10] **Make an X on the eighth block. Put a ring around the fourth block. Draw a square around the sixth block.**

(Continued on next page.)

(Continued from page 132.)

Extended Activity

Provide several pieces of 24″ x 36″ newsprint with a large numeral 10 in the center. Have groups of pupils illustrate tenness with pictures cut from old magazines. Materials needed: scissors, paste, old magazines.

Have the group evaluate each set of pictures. **How is 10 seen in each picture?**

Develop the page on 10 for the number booklets.

133

Purpose

To demonstrate that it takes 10 pennies to make a dime or 10 cents. To use this activity to demonstrate all the combinations that make 10.

Vocabulary

Ten cents (10¢), how much more, pennies, dime.

Materials

Real coins, 10 pennies for each member of the group.

> Children use pennies, nickels, and dimes to make small purchases. Real money may be used naturally and effectively to develop combinations about 10.

Developmental Activity

Give each child 10 pennies and a dime. Give the children practice in finding out how many more are needed. **Put your pennies in a pile. Now put 3 pennies in front of you. How many more do you need to make 10 pennies?** [7 pennies] **Three cents and 7 cents are 10 cents. Who can say it another way?** [7 cents and 3 cents are 10 cents.]

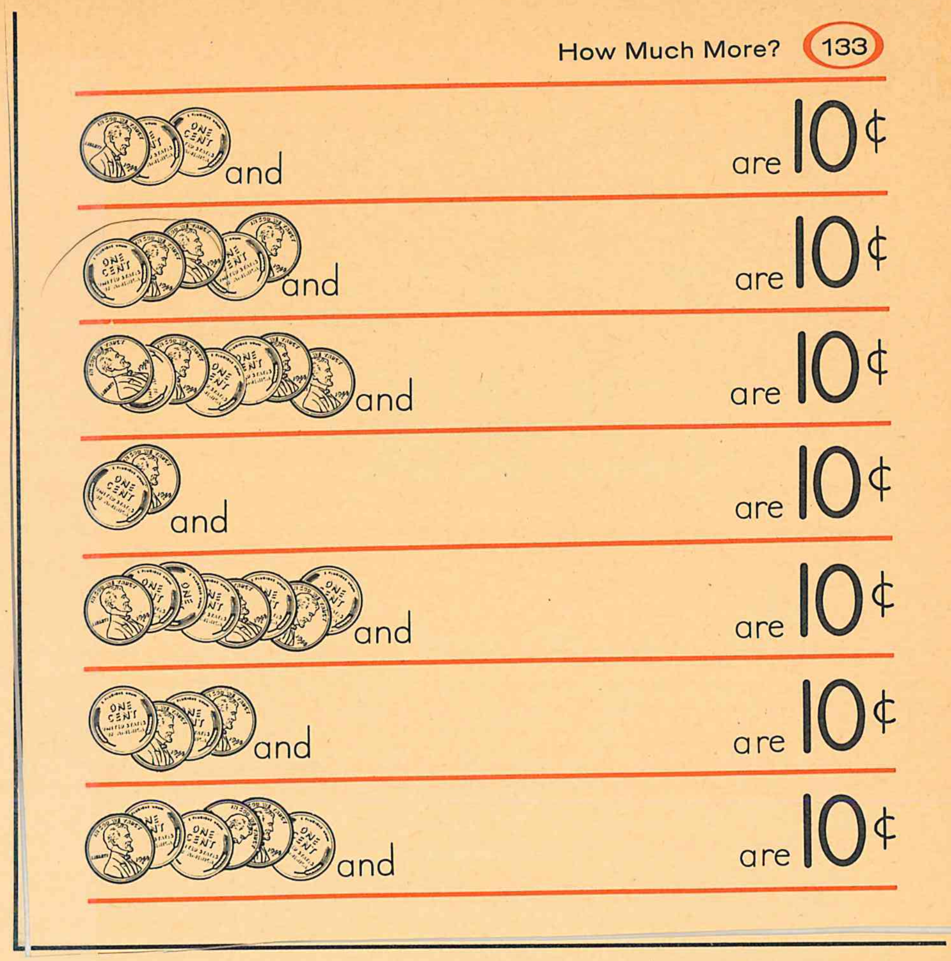
Continue this procedure with other combinations, using a "find-out-for-yourself" approach. Other combinations are:

1¢ and 9¢
9¢ and 1¢
2¢ and 8¢
8¢ and 2¢
4¢ and 6¢
6¢ and 4¢
5¢ and 5¢

Procedure

Now let us open our books and discuss page 133.

Find the 3 cents in the upper left-hand corner. How many more cents are needed to make 10 cents? [7 cents] Write on the chalkboard: 3 + ______ = 10. **What shall we put in the blank?** [7] **Read the sentence:** Three and seven are ten.



How Much More? 133

and are 10¢

and are 10¢

and are 10¢

and are 10¢

and are 10¢

and are 10¢

and are 10¢

Now count the coins in the next row. How many more cents are needed here to make 10 cents? [5¢] Write on the board the number sentence: 5 + ______ = 10. **What shall we put in the blank?** [5] **Read the sentence:** Five and five are ten.

How many pennies are there in the third row? [7] **How many more are needed to make 10 pennies?** [3] **Seven cents and 3¢ more are 10¢.**

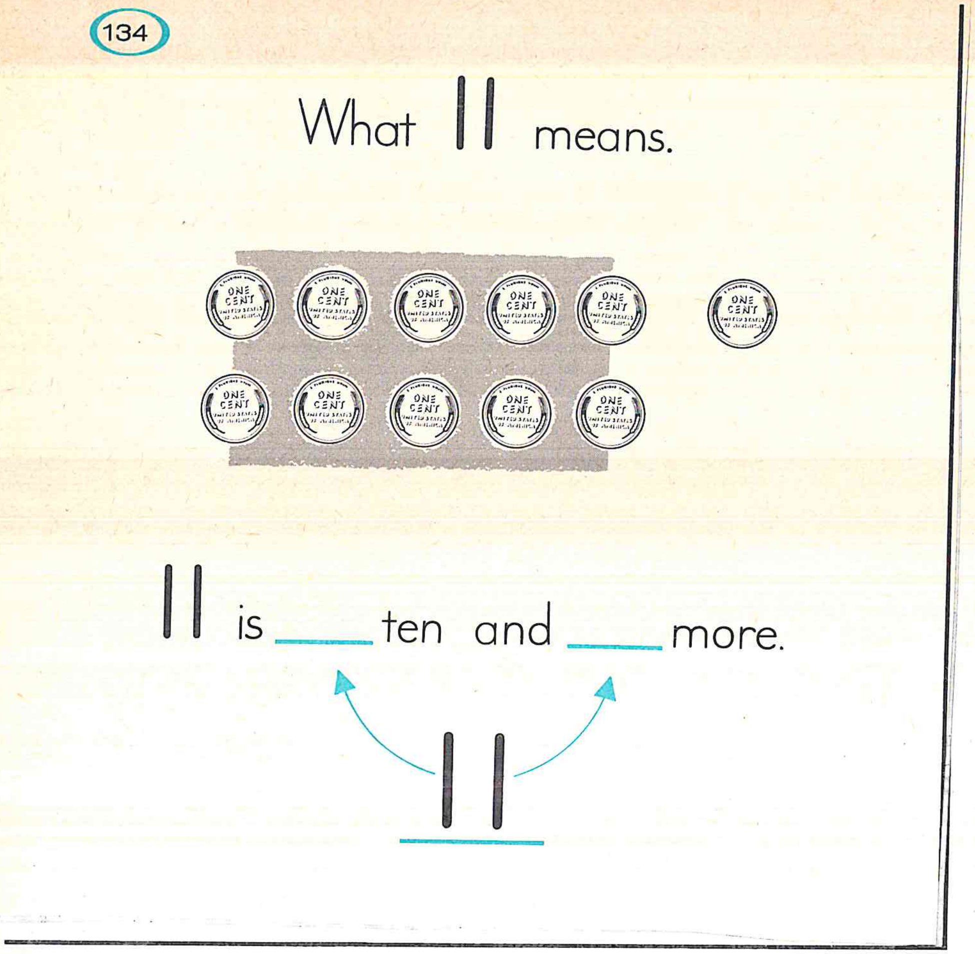
Which row is almost like this row? [first row] **Three cents and 7¢ more are 10¢.**

Now I will give you a hint. The next two rows are almost like each other. Who can tell me what the sentence in the first of these rows says? [2¢ and ______¢ are 10¢.] **What number goes in the blank?** [8] **Who can tell me what the sentence in the next row says?** [8¢ and ______¢ are 10¢.] **What number goes in the blank?** [2]

Can anyone discover in what way the last two rows are the same? [4¢ and 6¢ more are 10¢.] [6¢ and 4¢ more are 10¢.]

Extended Activity

Show the children how to draw around a circle to make "a penny." Make the circles smaller than an actual penny. Have the children draw the number of cents needed in each row.



134

What 11 means.

11 is ____ ten and ____ more.

11

134

Purpose

To develop the meaning of 11 as a two-place numeral.

Vocabulary

Place.

Materials

A set of 11 counters for each pupil. A flannel board.

Developmental Activity

Have each pupil take out a set of 11 counters. Put 11 objects in a row on the flannel board. Have each pupil make a similar row on his desk. **Let's count the objects on the flannel board together: 1–2–3–4–5–6–7–8–9–10–11. Who can show us which one is counter number 11? When we count, 11 is the number which comes after ______.** [10]

Today we are going to learn another meaning for 11. Write the numeral 11 on the chalkboard. **What is the name of this numeral?** [11] **Let's all look at the numeral 11. I'm going to frame part of it with my hands.** Frame the 1 in the ones' place. **What is this numeral?** [1] **How many counters does it stand for?** [1 counter] **Who can show us on the flannel board? How many counters are left? Let's count them: 1–2–3–4–5–6–7–8–9–10. Two 1's written this way are 11. If the 1 on the right** (point to it) **stands for 1 counter, how many counters does the 1 on the left** (point to it) **mean?** [10, or we can say 1 ten.] **The numeral on the left of the ones** (point to it) **tells us how many tens. So a new way to read 11 is 1 ten and 1 more.** Point as this is said. **Group your counters to show 1 ten and 1 more.**

> From now on make a particular point of reading *all* two-digit numerals that represent *how many* as 1 ten and 3 more, or 2 tens and 5 more. This procedure should assist in developing the meaning of place value.

Procedure

Open your books to page 134.

Can anyone read the sentence at the top of the page? [What 11 means.] **How many pennies are in the picture? Let's count them together, the top row first: 1–2–3–4–5–6–7–8–9–10–11.**

Draw a ring around the penny at the end of the top row. How many are left? [10] **Draw a ring around the 10 pennies like this.** Demonstrate. **Now we can finish writing the sentence: Eleven is ______ ten and ______ more. What numerals go on the lines?** [1 and 1] **Eleven is 1 ten and 1 more. Write the numerals.**

Purpose

To develop the meaning of 12 and 13 as two-place numerals.

Vocabulary

Place value.

Materials

A set of 13 counters for each pupil. A flannel board.

Developmental Activity

Have each pupil take out a set of 12 counters. Put 12 objects in a row on the flannel board. Have each pupil make a similar row on his desk. **Let's count the objects (name them) on the flannel board together. Softly—1—2—3—4—5—6—7—8—9—10—11—12. Who can show us which one is counter number 12?**

Today we are going to learn another meaning for 12. Put the numeral 12 on the chalkboard. **What is the name of this numeral?** [12] **It has two parts. I'm going to frame one part with my hands.** Frame the 2 on the right. **What is this numeral?** [2] **How many counters does it stand for?** [2 counters] **Who can show us on the flannel board? How many counters are left? Let's count them: 1—2—3—4—5—6—7—8—9—10. One and 2 written this way are 12. If the 2 on the right** (point to 2) **stands for 2 counters, how many counters does the 1** (point to it) **on the left mean?** [10, or we can say 1 ten.] **The numeral on the left** (point to it) **tells us how many tens. The numeral on the right** (point to it) **tells us how many ones. Who can read this numeral 12 the new way?** [1 ten and 2 more] Point to each element as it is read. **Group your counters to show 1 ten and 2 more.**

Procedure

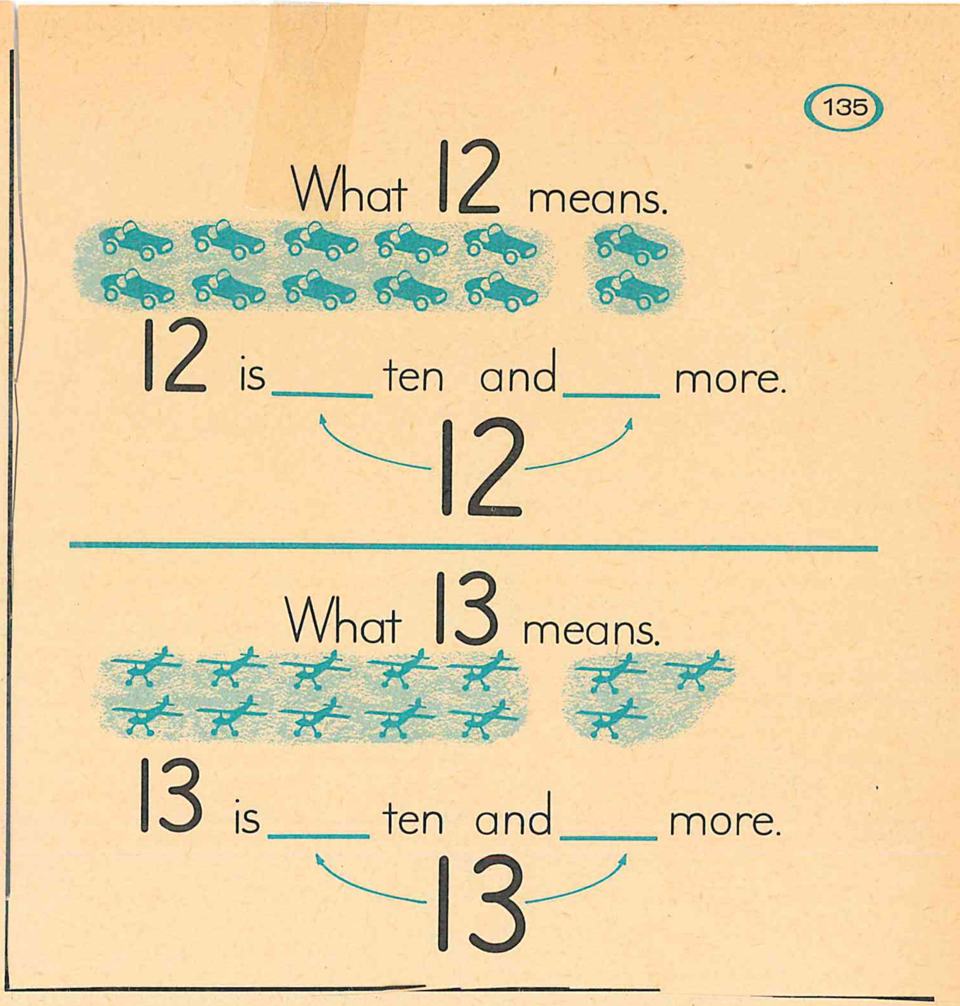
Open your books to page 135.

Can you read the sentence at the top of the page? [What 12 means.]

How many little racing cars are in the picture? Let us count them together—this way. Count the cars in the top row of the first group: 1—2—3—4—5. Then count the second row of this group: 6—7—8—9—10. Count the cars in the next group: 11—12.

Draw a ring around the 2 racers at the end of the rows. Point. **How many are left?** [10] **Draw a ring around the 10 racers that are left. Now we can finish writing the sentence: Twelve is ______ ten and ______ more. What numerals go on the lines?** [1 and 2] **Twelve is 1 ten and 2 more. Write the numerals on the lines.**

Repeat this procedure for the bottom half of the page with the 13 airplanes.



135

What 12 means.

12 is ____ ten and ____ more.

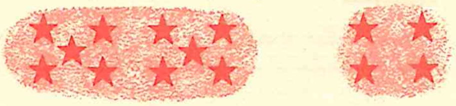
12

What 13 means.

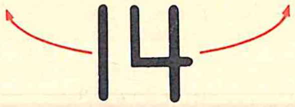
13 is ____ ten and ____ more.

13

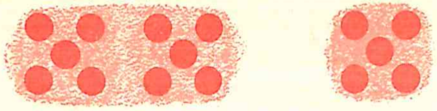
What 14 means.



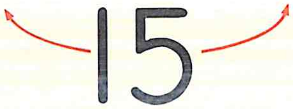
14 is ____ ten and ____ more.



What 15 means.



15 is ____ ten and ____ more.



136

Purpose

To develop the meaning of 14 and 15 as two-place numerals.

Vocabulary

Place value.

Materials

A set of 15 counters for each pupil. A flannel board.

Developmental Activity

Have each pupil take out a set of 14 counters. Put 14 objects in a double row on the flannel board. Have each pupil make 2 similar rows on his desk. **Let's count the objects (name them) on the flannel board. How many are there?** [14] **Who can show us which one is counter number 14?**

Today we are going to study the how many meaning for 14. Write the numeral 14 on the chalkboard. Frame the 4. **What is this numeral?** [4] **How many does it stand for?** [4 ones or 4 counters] **Show me with your counters.** At the same time, separate 4 of the objects on the flannel board and make a compact 10-group out of the others. **1 and 4 written this way (14) are 14.** Point to it. **If the 4 on the right (point to it) stands for 4 counters, how many does the 1 (point to it) on the left stand for?** [1 ten or one 10-group or 10 counters]

Who can read 14 the new way? [1 ten and 4 ones] Point to each element as it is read. **Group your counters to show 1 ten and 4 ones.**

Procedure

Open your books to page 136.

Can you read the sentence at the top of the page? [What 14 means.]

How many stars are in the picture? Let's count them together. Follow the counting procedure on page 135. **Draw a ring around the 4 stars at the end of the rows. How many are left?** [10] **Draw a ring around those that are left.**

Now finish writing the sentence: Fourteen is ____ ten and ____ more. What numerals go on the lines? [1 and 4] **Fourteen is 1 ten and 4 more. Write the numerals on the lines.**

Repeat this procedure for the bottom half of the page with the 15 colored balls or circles.

Purpose

To develop the meaning of 16 and 17 as two-place numerals.

Vocabulary

Place value.

Materials

A set of 17 counters for each pupil. A flannel board.

Developmental Activity

Have each pupil take out a set of 16 counters. Put 16 objects in a double row on the flannel board. Have each pupil make similar rows on his desk. **Let's count the objects (name them) on the flannel board. How many are there?** [16] **Who can show which one is number 16?**

Today we are going to study the **how many** **meaning for 16.** Write the numeral 16 on the chalkboard. Frame the 6. **What is this numeral?** [6] **How many does it stand for?** [6 counters or 6 ones] **Show with your counters.** At the same time separate 6 of the objects on the flannel board and make a compact 10-group with the others. **1 and 6 written this way (16) are 16. If the 6 on the right stands for 6 counters, how many does the 1 on the left mean?** [10 counters, 1 ten, or one 10-group]

Who can read 16 the new way? [1 ten and 6 ones] Point to each element as it is read. **Group your counters to show 1 ten and 6 ones.**

Procedure

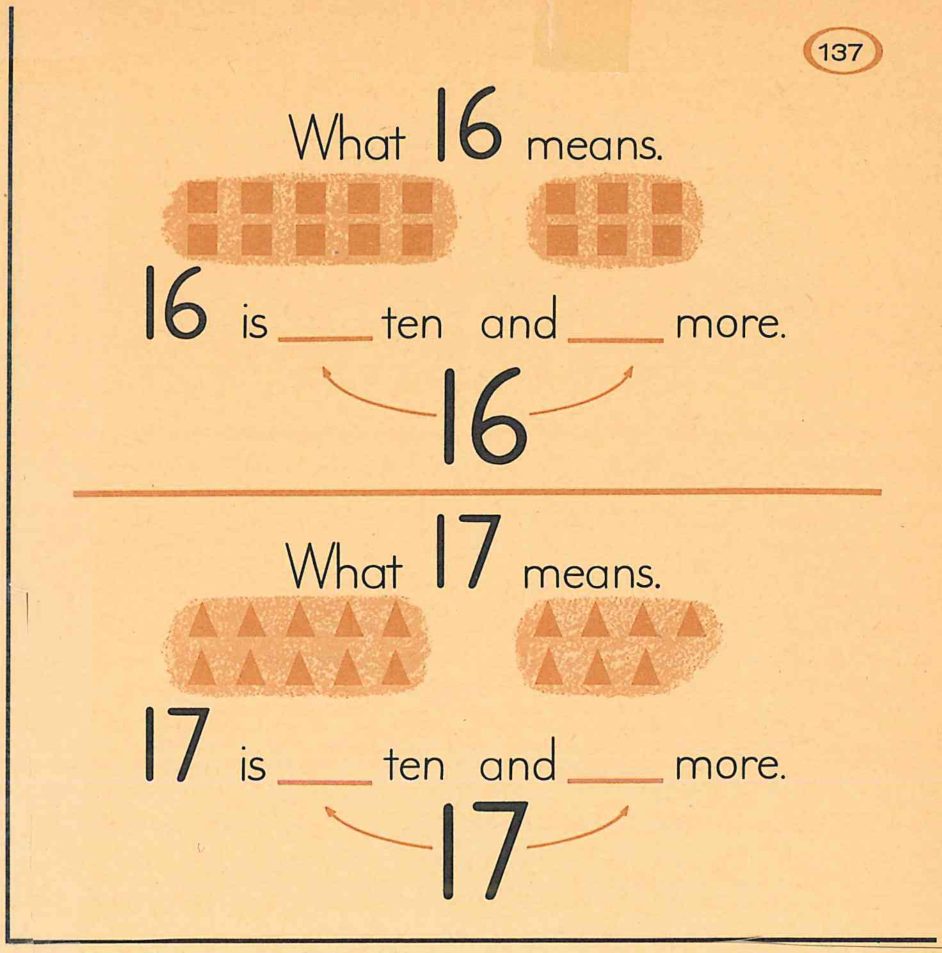
Open your books to page 137. Can you read the sentence at the top of the page? [What 16 means.]

How many colored squares are in the picture? Let's count them together. Follow the counting procedure on page 135. **Now let us count them by 2's. Which one is number 16?**

Draw a ring around the 6 squares at the end of the rows. How many are left? [10 or one 10-group] **Draw a line around the 10-group.**

Now finish writing the sentence: Sixteen is ______ ten and ______ more. What numerals go on the lines? [1 and 6] **Sixteen is 1 ten and 6 more. Write the numerals on the lines.**

Repeat this procedure for the bottom half of the page with the 17 colored triangles.



137

What 16 means.

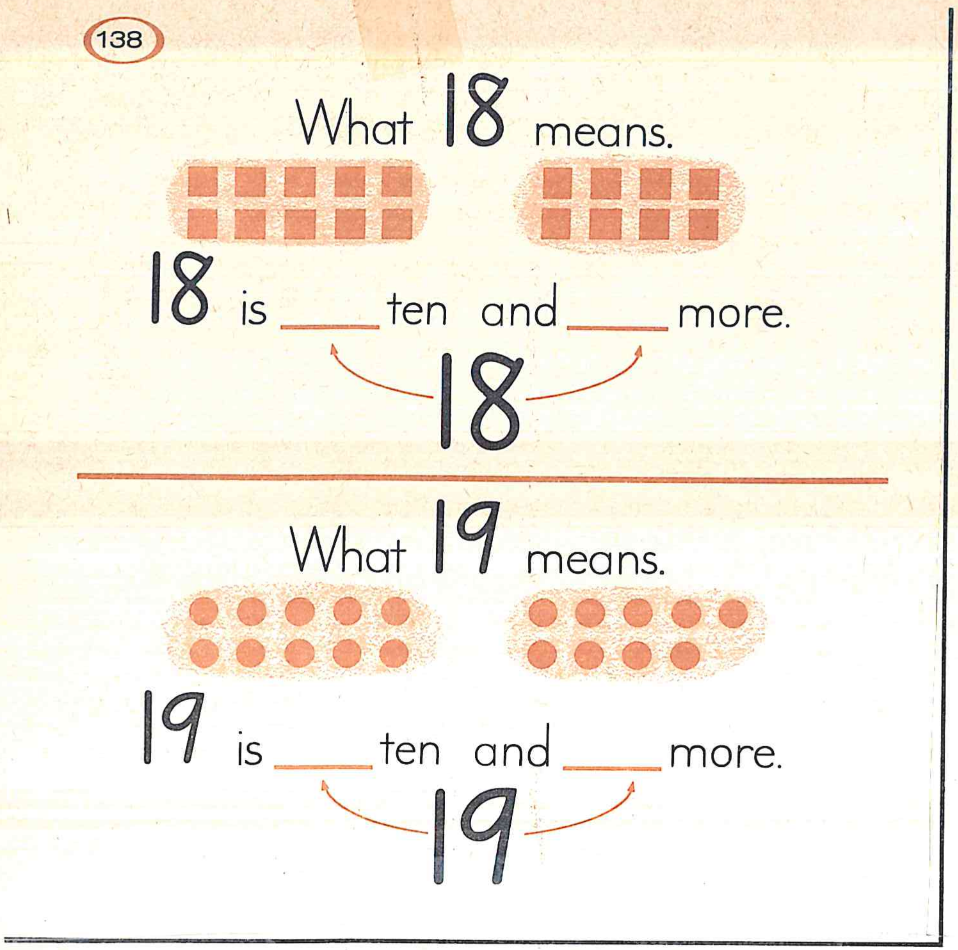
16 is ____ ten and ____ more.

16

What 17 means.

17 is ____ ten and ____ more.

17



138

What 18 means.

18 is ____ ten and ____ more.

18

What 19 means.

19 is ____ ten and ____ more.

19

138

Purpose

To develop the meaning of 18 and 19 as two-place numerals.

Vocabulary

Place value.

Materials

A set of 19 counters for each pupil. A flannel board.

Developmental Activity

Have each pupil take out a set of 18 counters. Put 18 objects in a double row on the flannel board. Have each pupil make similar rows on his desk. **Let's count the objects (name them) on the flannel board. How many are there?** [18] **Which one is number 18?** Discuss.

Today we are going to study the how many meaning for 18. Write the numeral 18 on the chalkboard. Frame the 8. **What is this numeral?** [8] **How many does it stand for? Show this with your counters.** At the same time separate 8 of the objects on the flannel board and make a compact 10-group with the others. **1 and 8 written this way (18) are 18. If the 8 on the right stands for 8 counters, how many does the 1 on the left mean?** [10 counters, 1 ten, or one 10-group]

Who can read 18 the new way? [1 ten and 8 ones] Point to each element as it is read. **Group your counters to show the 1 ten and 8 ones.**

Procedure

Open your books to page 138.

Can you read the sentence at the top of the page? [What 18 means.]

How many colored squares are in the picture? Let's count them together. Follow the counting procedure on page 135. **Now let us count them by 2's. Which one is number 18?**

Draw a ring around the 8 squares at the end of the rows. How many are left? [1 ten, or 10 squares, or one 10-group] **Draw a ring around the 10-group. Now finish writing the sentence: Eighteen is ______ ten and ______ more. What numerals go on the lines?** [1 and 8.] **Eighteen is 1 ten and 8 more. Write the numerals on the lines.**

Repeat this procedure for the bottom half of the page with the 19 colored balls.

Purpose

To develop the meaning of 10 and 20 as two-place numerals.

Vocabulary

Place value.

Materials

A set of 20 counters for each pupil. A flannel board.

Developmental Activity

Have each pupil take out a set of 10 counters. Put 10 objects in a double row on the flannel board. Have each pupil make similar rows on his desk. **Let's count the objects (name them) on the flannel board. How many are there?** [10] **Which one is number 10?** Discuss.

Today we are going to study the how many meaning for 10. Write the numeral 10 on the chalkboard. Frame the zero. **What is this numeral?** [0] **How many does it stand for** [0, not any] **How many counters do you need on your desk to show zero?** [no counters] **1 and 0 written this way (10) are 10. If the 0 on the right stands for not any counters, how many does the 1 on the left mean?** [10 counters, 1 ten, or one 10-group]

Who can read 10 the new way? [1 ten and not any ones or one 10-group] Point to each element as it is read. **Group your counters to show 1 ten.**

Procedure

Open your books to page 139.

Can you read the sentence at the top of the page? [What 10 means.] **How many airplanes are in the picture? Let's count them together. Which one is number 10? Draw a ring around the 10-group. Are any left?** [no]

Now finish writing the sentence: Ten is ______ ten and ______ more. What numerals go on the lines? [1 and 0] **Ten is 1 ten and not any more. Write the numerals.**

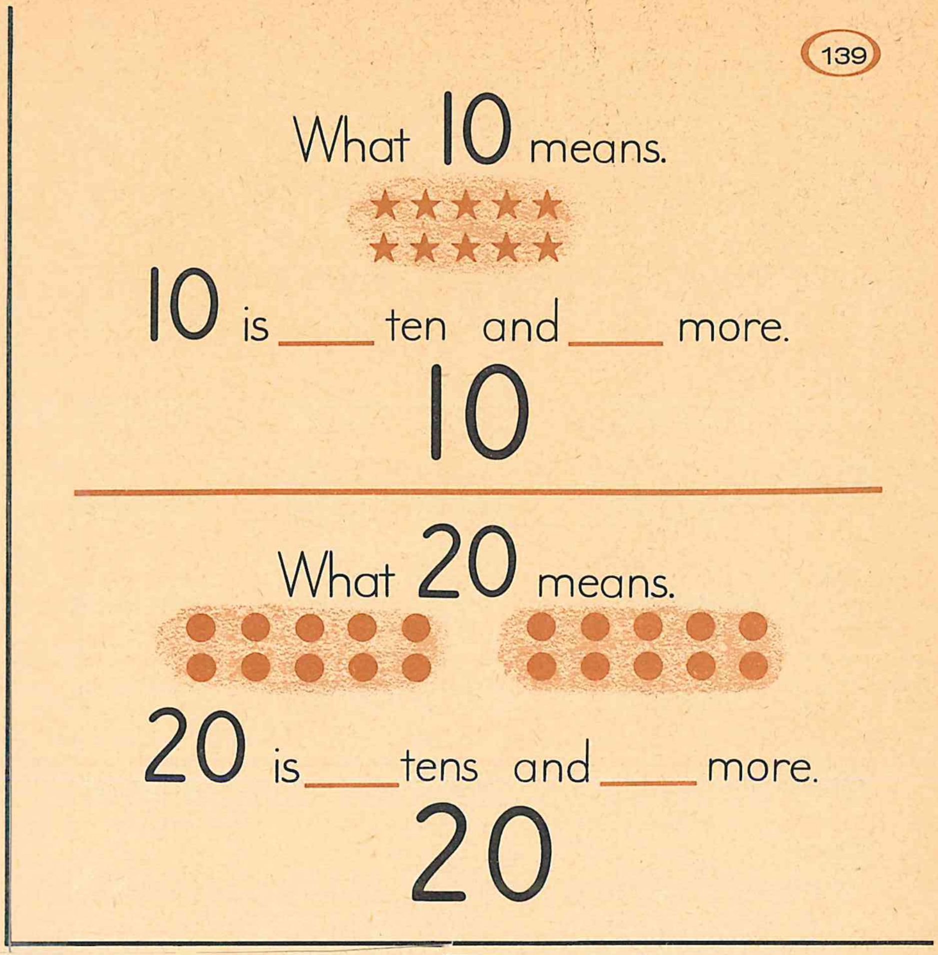
Repeat this procedure for the bottom half of the page with the numeral 20.

Extended Activity

Have the class count by 10's to 100. If possible, have them count backwards by 10's, also.

10—20—30—40—50—60—70—80—90—100
100—90—80—70—60—50—40—30—20—10

Counting by 10's should be used in as many natural situations as possible—for example, in games at play period.



139

What 10 means.

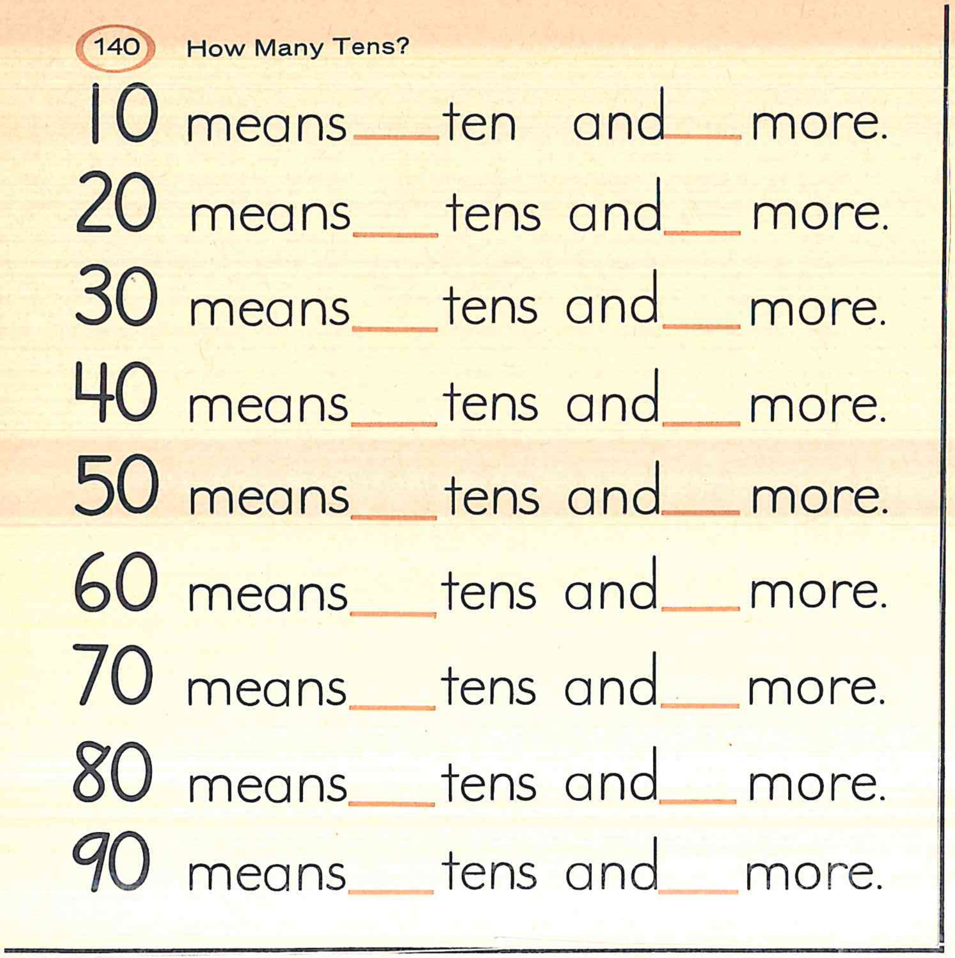
10 is ____ ten and ____ more.

10

What 20 means.

20 is ____ tens and ____ more.

20



140 How Many Tens?

10 means ___ ten and ___ more.

20 means ___ tens and ___ more.

30 means ___ tens and ___ more.

40 means ___ tens and ___ more.

50 means ___ tens and ___ more.

60 means ___ tens and ___ more.

70 means ___ tens and ___ more.

80 means ___ tens and ___ more.

90 means ___ tens and ___ more.

Purpose

To develop the meaning of two-place numerals.

Vocabulary

Tens' place.

Developmental Activity

Write the numeral 10 on the chalkboard. Frame the zero. **What does the zero mean?** [not any, no ones, not any ones] Frame the 1. **What does the 1 mean?** [1 ten, or one 10-group] Write the numeral 20 on the chalkboard. Follow the above procedure with 20, then with 40, 70, 80, 90.

Procedure

Open your books to page 140.

Let's read the numerals down the left side of the page together. 10—20—30—40—50—60—70—80—90. Now backwards: 90—80—70—60—50—40—30—20—10.

Who can read the first line? [10 means blank ten and blank more.] **What is the correct answer?** [1 ten and 0 more] **Write in the numerals to finish the sentence.**

Repeat for 20. Then have each pupil proceed at his own rate to finish the page.

Extended Activity

Take this page home and explain what it means to your parents.

Purpose

To provide an opportunity to count by 10's to 100.

Vocabulary

Ten, twenty, thirty, forty, fifty, sixty, seventy, eighty, ninety, one hundred.

Materials

Use real money (dimes) if possible.

> Many children come to first grade knowing how to count by 10's; others need opportunities and special help to learn this skill.

Developmental Activity

Give each child at the table 10 dimes. **Place 1 dime in front of you. Add another dime to the one you already have. Now how many cents do you have?** [20] **Now add another dime to the dimes in front of you. How many cents do you now have?** [30] Continue this procedure until 100 has been reached.

Who would like to do this alone? Give many children an opportunity to try it. When a child feels uncertain, assist him.

Procedure

Now open your books to page 141.

What do you see? [many dimes] **Who can find the column that has only 1 dime? It is in the lower left-hand corner. Point to it. One dime is how many cents?** [10] **Write 10 in the box at the top of this column.** Point to it.

Now look at the next column. Two dimes are how many cents? [20] Write 20 in the box at the top of this column.

In the next column how many dimes have been added? [1] **Now how much do we have?** [30¢] **Does anyone wish to count from the bottom and check it? Do we all agree that it is 30¢?**

How many think they can finish the page by themselves?

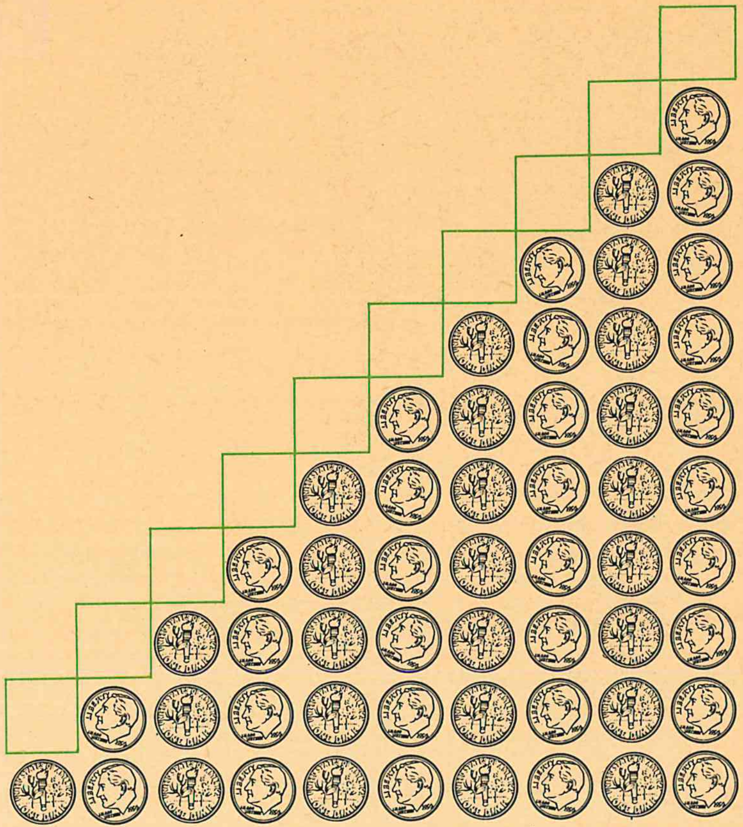
If you have trouble finding an answer, what can you do? Give the children time to finish the page. Assist anyone who needs guidance.

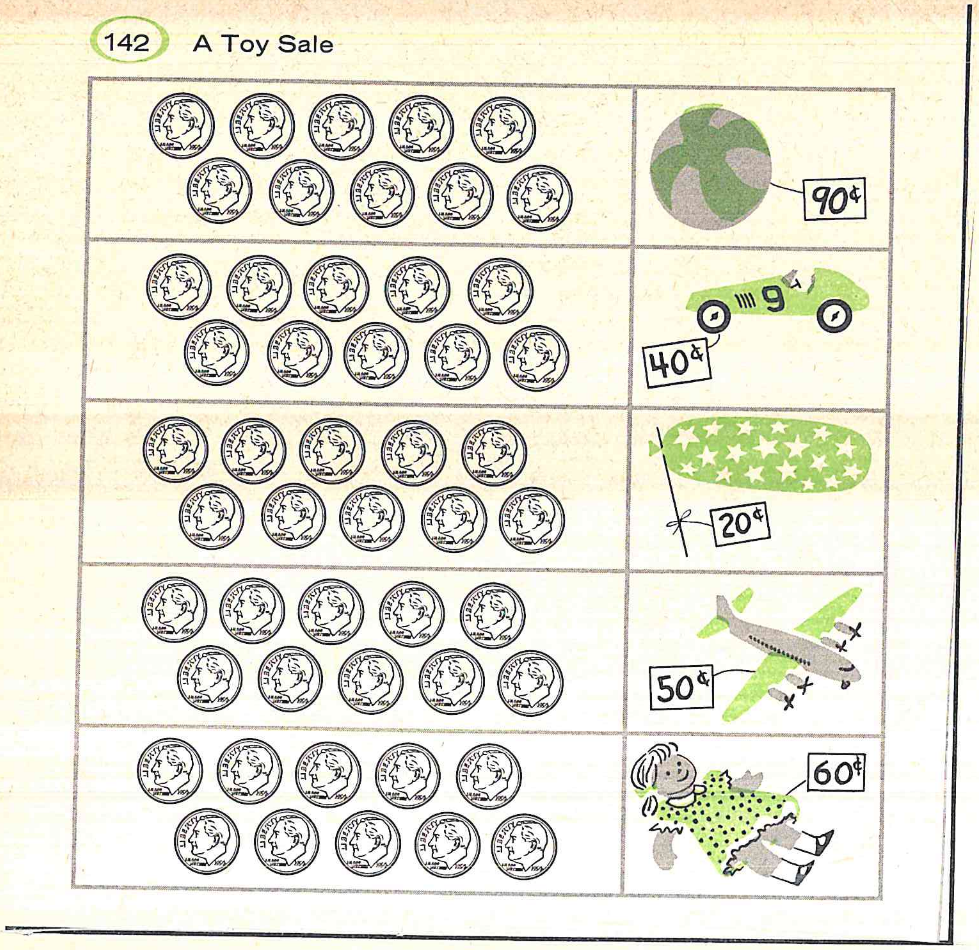
Call on individual children to read the answers they have written in the boxes.

Give practice in counting in a variety of ways. Count other things besides money.

Extended Activity

Take this sheet home and share it with your parents.




142 A Toy Sale

Purpose

To relate the meaning of 10 to money through the use of dimes.

Vocabulary

Dime, ten cents, cents.

Materials

At least 10 real dimes. 5″ x 8″ pictures of toys with 20¢, 40¢ 50¢, 60¢, etc., prices on them.

Developmental Activity

Place the pictures in the chalktray. Have a pupil select a picture and show with the dimes how much the toy in it costs. Have him count by 10's to get the correct amount. For example, a toy costs 30¢, say, **"How many dimes does it take to make 30¢?" Count: 10¢—20¢—30¢.** Relate the 30 to the meaning of tens. **The 3 means how many tens?** [3] **How many ten-cent pieces (dimes)?** [3]

Have the children take turns choosing a toy and explaining what the numeral in the price means.

Procedure

Open your books to page 142.

Look at the toys for sale. Give the group an opportunity to look and comment if they wish.

How much does the beach ball cost? [90¢] **Draw a ring around as many dimes as you would need to pay for it. How many?** [9] Do this for each row.

Extended Activity

Set up a toy store and have the children play store with objects priced 10¢, 20¢, 30¢, 40¢, 50¢, 60¢, 70¢, 80¢, and 90¢.

Purpose

To develop the understanding that money has value when buying articles needed or wanted. To give practice in recognizing coins. To become aware of the use of the ¢ symbol.

Vocabulary

Cent, cents, penny, nickel, dime.

Materials

Real money, play money, small toy objects, price tags for toy objects.

Developmental Activity

Before this lesson, the teacher should ask the children to bring small toys from home. She, too, can contribute miniature toys and arrange them on a shelf, table, or chalktray. Price tags should be made and fastened to the toys.

Working in small groups at a table is preferred. Give each child in the group some small coins.

Today we are going to learn more about using money. Here on the table are some toys. Each toy has a price tag on it. You may select a toy, then show me which coins you will use to buy the toy. Remember this sign ¢ (point to it) **means cent or cents. Find it on the tags. Who can write it on the chalkboard?**

After the children have had enough experience with real toys and real money: **I would like to show you a page of toys on sale. Doesn't your mother often read the ads in the newspaper and buy things she needs or wants? We can do the same.**

Procedure

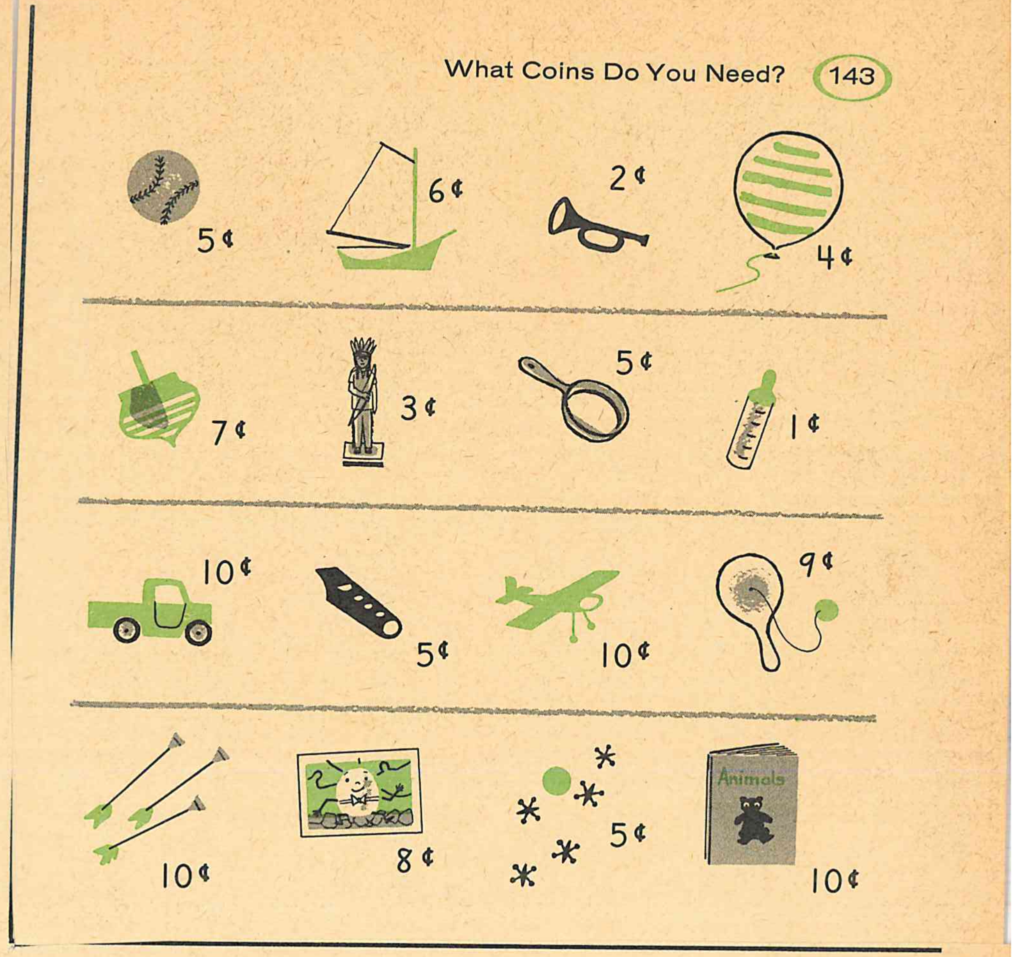
Open your books to page 143.

Point to the first thing in the top row. Now name the things in the row and read the price tags. Now I will select a toy and you will show me the coins you would need to buy it. Name the toys in the row. Skip around. **Now let us move to the next row.** Follow the same procedure. Variety may be introduced by letting a child name the toy. When different combinations of coins can be used to pay for a toy, have the children tell what they are.

After the learnings involved in each row have been carefully presented, review the page. This time encourage each child in the group to name his favorite toy and show the coins needed for purchasing it.

Extended Activity

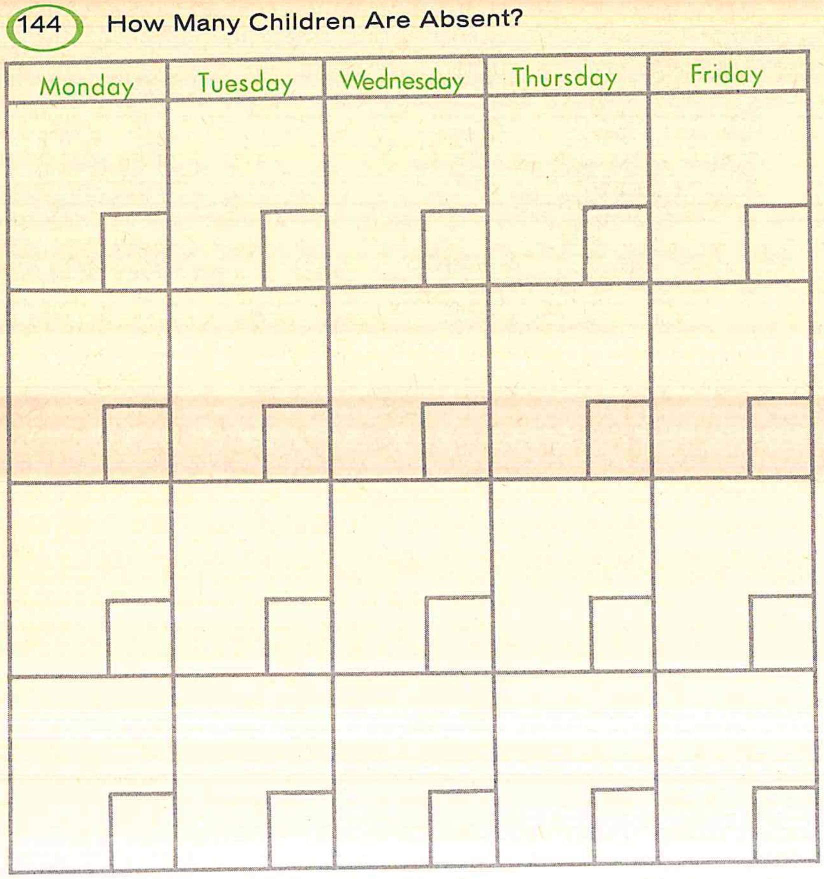
Work with the children to select pictures of inexpensive items. Decide on reasonable prices and make a price tag for each item.



What Coins Do You Need? 143

Use these pictures to make a newspaper ad.

Keep toys used in this lesson for several days. Encourage children "to buy and sell" to each other during free time.


144 How Many Children Are Absent?

144

Purpose

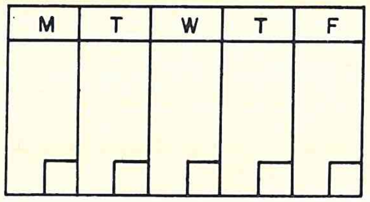
To develop an awareness for graphs; to make a pictograph showing the number of children absent for any given week. To become more familiar with the names of the days of the week and to recognize that they follow in a fixed pattern.

Vocabulary

Absent, present, graph, pictograph, Monday, Tuesday, Wednesday, Thursday, Friday.

Materials

A large sheet of paper 3′ x 5′, prepared to look like this illustration.



An envelope containing 4″ tall cutouts of boys and girls, similar to paper dolls, made of tagboard or construction paper.

Developmental Activity

Put three figures on the flannel board. **These three ——— ——— stand for the numeral 3. We can also use figures or pictures to stand for a numeral on a chart or record.**

Every day I make a record of the pupils who are absent or not in school that day. Show the children your register. We can make a record of our own using pictures to show how many children are absent each day. We call this record a pictograph. Can you guess why? [We use pictures.]

After attendance has been taken, have the class record the absences on the pictograph. Have one child select the cutouts for the number of boys absent and have him paste them on the chart in the square for the day. Have another pupil follow this procedure for the girls. **How many boys are absent? How many girls? How many all together?** Have a child write the numeral for the total in the small box.

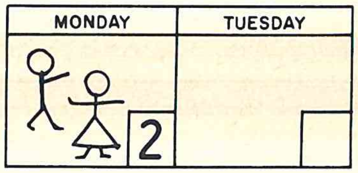
Procedure

Children, we are going to use page 144 in our books in a special way.

This page looks a little bit like a calendar, doesn't it? In what way is it different from a calendar? [It has no numerals and no Saturday or Sunday on it.]

Each day we will use this page to keep a record of how many children are absent. Each person comes to school when he is well, but if a boy or girl has to miss school, we will draw a figure suggesting his or her picture in the box.

After we have drawn pictures of the absent boys and girls in the box, you may write the number of children absent in the smaller box. It is very much like the pictograph we made on the board. It might look like this:



Continue this record in the book each day for at least a week. It may be continued for a month, or the teacher may wish to come back to it after an interval of time.

Purpose

To review the meaning of the teen numerals.

Materials

A set of 19 counters for each pupil. A chalkboard.

Developmental Activity

Have each pupil put a set of 19 counters on his desk. Then have each pupil make a compact 10-group. **Show me a 10-group.**

Now when I write a numeral on the chalkboard, show me how many with your counters. Put 12 on the chalkboard. Frame the 2. **Frame the counters that show how many ones.** Frame the 1. **Frame the counters that show how many tens.** Check to see that each pupil frames the correct set of counters. **Twelve means how many tens?** [1] **And how many more?** [2]

Repeat this procedure for 14, 17, 11, 16, 19, 13, 15.

Procedure

Open your books to page 145.

On the left-hand side of the page, what do we see? [squares] Have the group discuss each row and tell what the number would be. For example, "One ten and two more are twelve."

Now look at the right-hand side of the page. Can you write the numeral that tells how many ten and 1 more are? [11] **Write 11 on the line. What will the next one be? What numeral tells how many ten and 5 more are?** [15] **Finish working the others.**

Circulate and give help as needed.

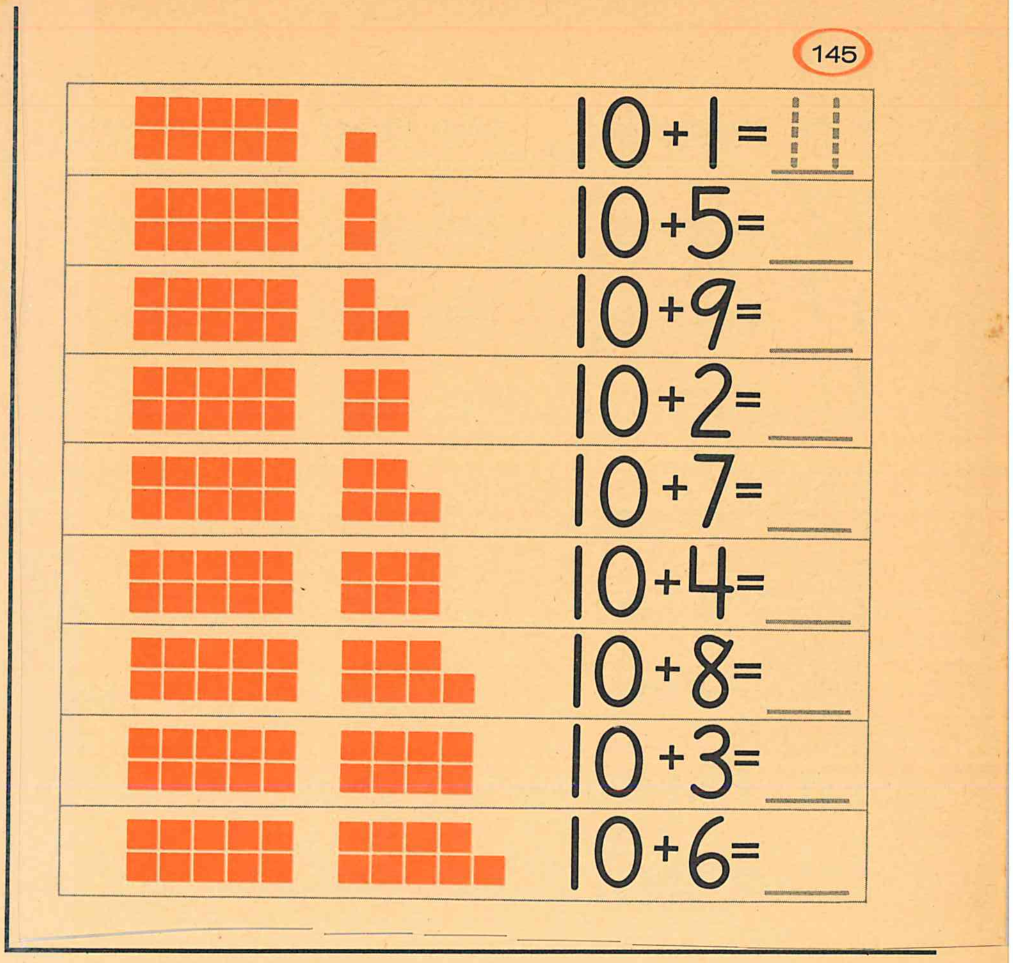
When you are finished, draw a line from the number sentence to the set of squares that goes with it.

Extended Activity

Play Number Spy. This is an informal game in which the group watches for numerals all day long. For example, when a pupil sees 24 in his reader, he raises his hand and says, "I spy." The teacher then asks him to read the numeral as so many tens and so many more. [2 tens and 4 more]

The purpose of the game is two-fold: It increases the children's awareness of numerals in their environment and it enables them to read the numerals meaningfully.

During this stage of development, *all* two-digit numerals should be read the expanded way. (______ tens and ______ more.)



145

10 + 1 = 11

10 + 5 = ____

10 + 9 = ____

10 + 2 = ____

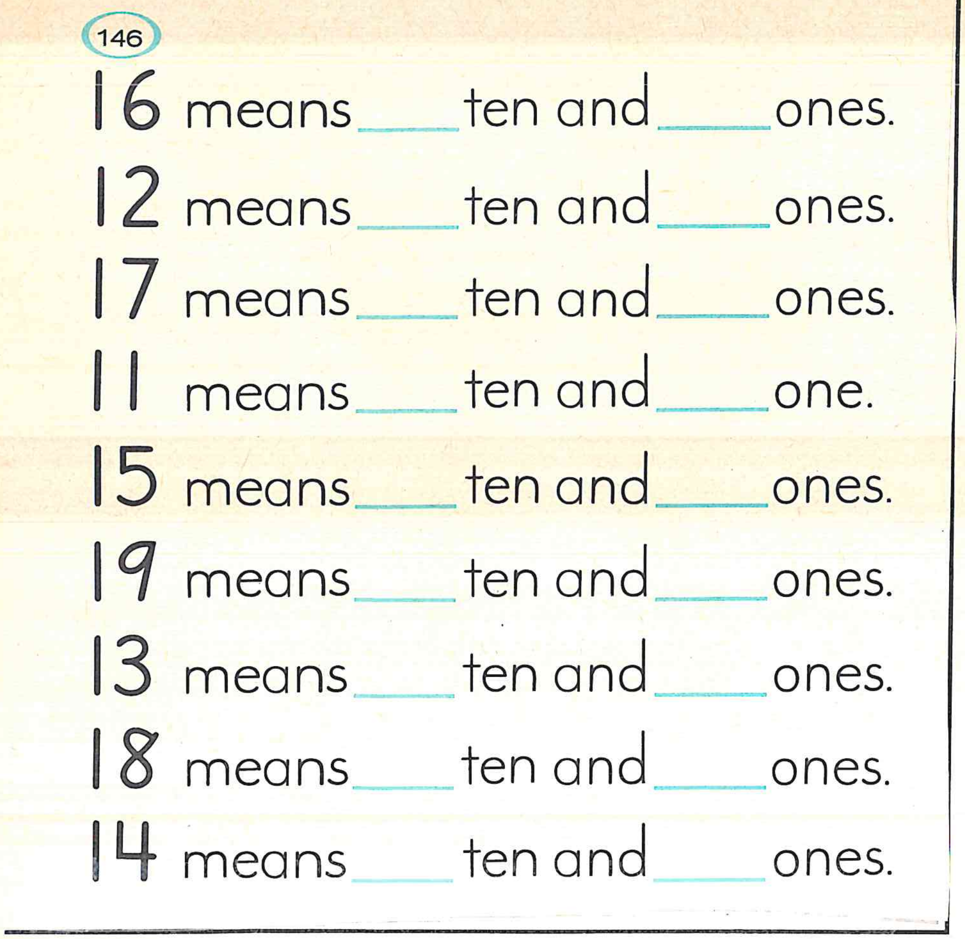
10 + 7 = ____

10 + 4 = ____

10 + 8 = ____

10 + 3 = ____

10 + 6 = ____



146

16 means ____ ten and ____ ones.

12 means ____ ten and ____ ones.

17 means ____ ten and ____ ones.

11 means ____ ten and ____ one.

15 means ____ ten and ____ ones.

19 means ____ ten and ____ ones.

13 means ____ ten and ____ ones.

18 means ____ ten and ____ ones.

14 means ____ ten and ____ ones.

146

Purpose

To review the meaning of the teen numerals.

Materials

A set of 19 counters for each pupil.

Developmental Activity

Have each pupil take out a set of counters.

Boys and girls, today we are going to see if you can show me how many are in some numbers. Write 14 on the chalkboard. Then frame the 4. **How many?** [4 ones] Frame the 1. **How many?** [1 ten] **Arrange your counters to show the ten and the 4.** Observe the children's work carefully and help as needed. **Fourteen is ______.** Have the class supply the answer: 1 ten and 4 more or 4 ones. Repeat this procedure for 19, 13, 18, 16.

Procedure

Open your books to page 146.

Let's read the first line together. Sixteen means (blank) ten and (blank) ones. What numerals do we need to write on the lines? [1 for 1 ten and 6 for 6 ones] **Write the numerals. Can you do the others? Are we sitting up tall?**

Circulate and give help as needed.

Extended Activity

Have the pupils take their readers and check to see *how many* pages they will have read when they finish page 16. **What does the numeral tell us?** Discuss.

Purpose

To extend the meaning of the 20's.

Materials

A set of 30 counters for each pupil.

Developmental Activity

Have each pupil take out a set of counters.

Boys and girls, today we are going to see if you can show me how many are in some two-place numerals that have 2 tens in them. Write 23 on the chalkboard. Frame the 3. **How many?** [3 ones] Frame the 2. **How many?** [2 tens] **Show 2 tens and 3 ones with your counters.** Carefully check each child's work and give help as needed. **How do we read this numeral?** [twenty-three] **What does 23 mean?** [2 tens and 3 ones] Repeat this procedure for 29, 24, 28, 21.

Procedure

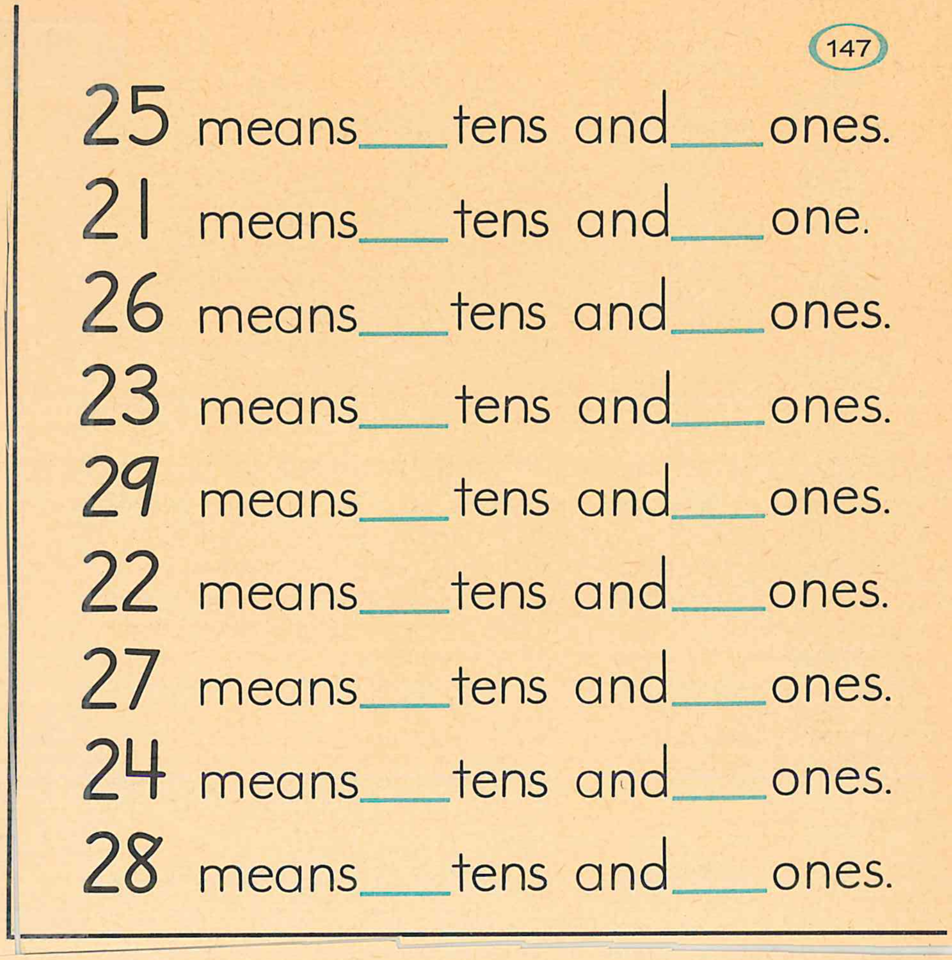
Open your books to page 147.

Let's read the first line together. "Twenty-five means (blank) tens and (blank) ones." What numerals do we need to write on the lines? [2 for 2 tens and 5 for 5 ones] **Write the numerals. Can you do the others? Are we sitting up tall?**

Circulate and give help as needed.

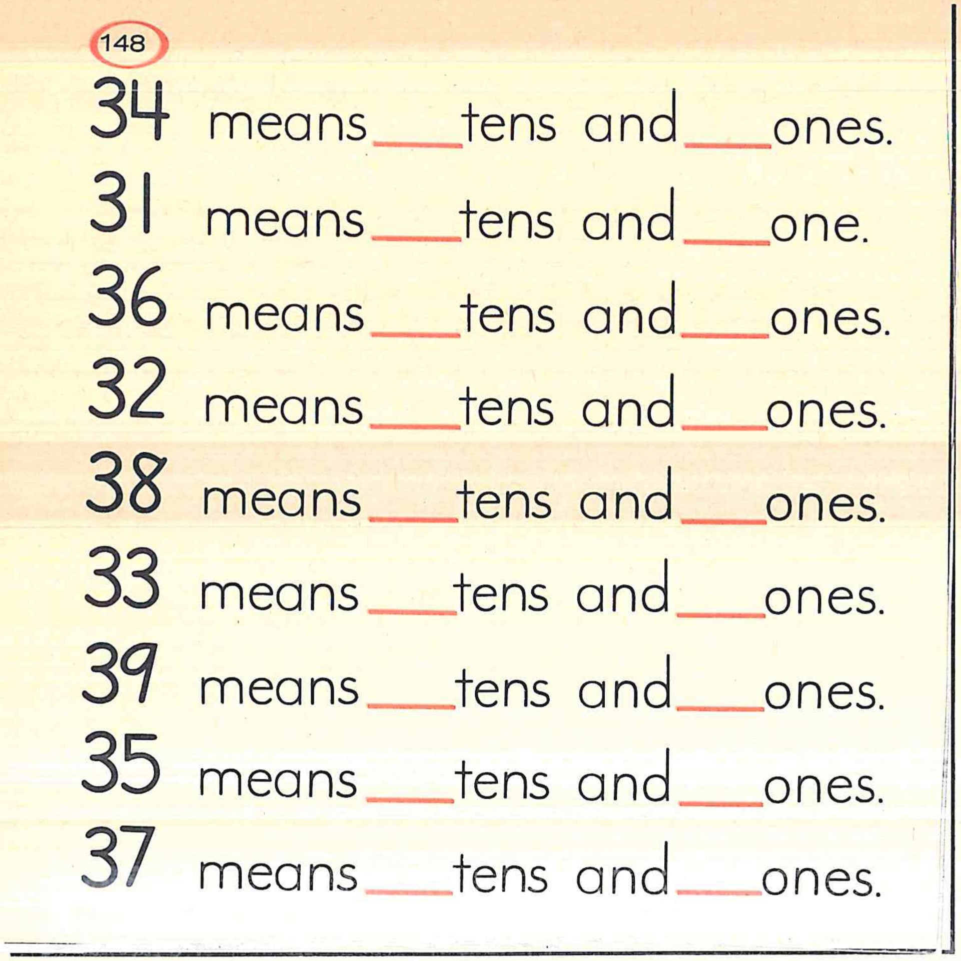
Extended Activity

Have the group play Number Spy for numerals in the 20's. This is explained on page 145.



147

25 means ___ tens and ___ ones.
21 means ___ tens and ___ one.
26 means ___ tens and ___ ones.
23 means ___ tens and ___ ones.
29 means ___ tens and ___ ones.
22 means ___ tens and ___ ones.
27 means ___ tens and ___ ones.
24 means ___ tens and ___ ones.
28 means ___ tens and ___ ones.



34 means ___ tens and ___ ones.

31 means ___ tens and ___ one.

36 means ___ tens and ___ ones.

32 means ___ tens and ___ ones.

38 means ___ tens and ___ ones.

33 means ___ tens and ___ ones.

39 means ___ tens and ___ ones.

35 means ___ tens and ___ ones.

37 means ___ tens and ___ ones.

Purpose

To develop the meaning of the 30's.

Materials

Have an oak-tag strip chart 12″ x 36″ with the numerals 30 through 39 written in sequence.

Developmental Activity

Put the strip chart up on the chart rack, easel, or chalktray. **Can we read these numerals in order?** Point to 30, 31, etc. as the pupils read. **This is easy.**

Now we are going to play a game. When I point to a numeral, raise your hand if you can tell what it means. Point to the 34. [34 means 3 tens and 4 ones.] Repeat for all the numerals on the chart.

Reverse the procedure. **I am thinking of a number that means 3 tens and 6 ones. What is the number?** [36] Have the responding pupil point to the 36 on the chart and read it as thirty-six. Repeat for the other numerals on the chart.

Procedure

Open your books to page 148.

This page will be easy. Who can read the first line? [34 means (blank) ten and (blank) ones.] **What numerals do we need to write on the lines?** [3 for tens and 4 for the ones] **Write the numerals. Now do the others. Are we sitting up tall?**

Circulate and give help as needed.

Extended Activity

Have the group play Number Spy for numerals in the 30's. See page 145.

Purpose

To develop the meaning of the 40's, 50's etc., through 90's.

Materials

Have an oak-tag strip chart 12″ x 36″ with the numerals 40 through 49 written in sequence.

Developmental Activity

Put the strip chart up on the chart rack, easel, or chalktray. **Who can read these numerals?** Point to 40, 41, etc. as the pupils read. **Now we are going to play a game. When I point to a numeral, raise your hand if you can tell what it means.** Point to 42. As pupils raise their hands, call on one pupil to answer. [42 means 4 tens and 2 ones.] Do this with all the numerals on the chart.

Reverse the procedure. **I am thinking of a number that means 4 tens and 2 ones. What is the number?** [42] Have the responding pupil find 42 on the chart and read it as forty-two. Repeat this procedure for the other numerals on the chart.

Procedure

Open your books to page 149.

Who can read the first line? [42 means (blank) tens and (blank) ones.] **What numerals do we need to write on the lines?** [4 for the tens and 2 for the ones] **Write the numerals.**

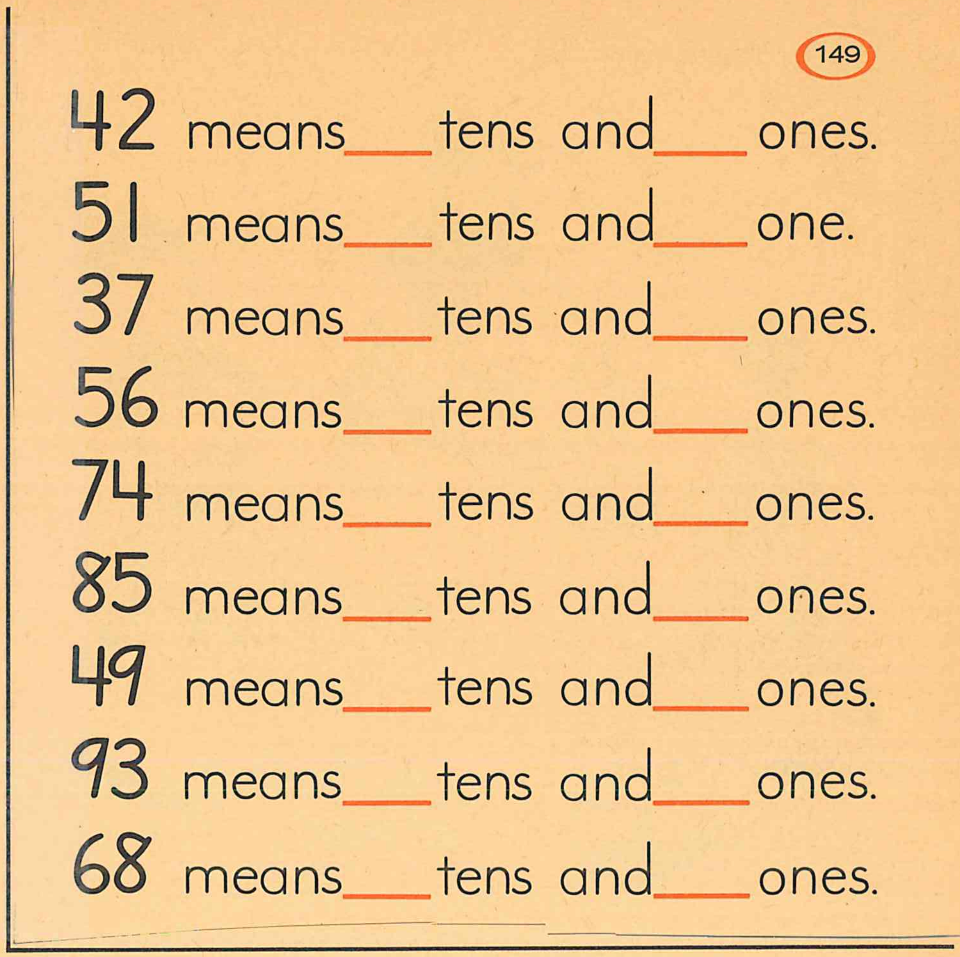
Now let's read the column of numerals together. Point to 51, 37 in sequence and have the group read each numeral.

Now in each row write the numerals that show how much each two-place numeral means. Are we sitting up tall?

Circulate and give help as needed.

Extended Activity

Make a hundred chart. Have pupils take turns finding a numeral and sharing what it means with the group. For example, a child points to 72 and says, "This is the numeral seventy-two. It means seven tens and two ones."



149

42 means___tens and___ones.

51 means___tens and___one.

37 means___tens and___ones.

56 means___tens and___ones.

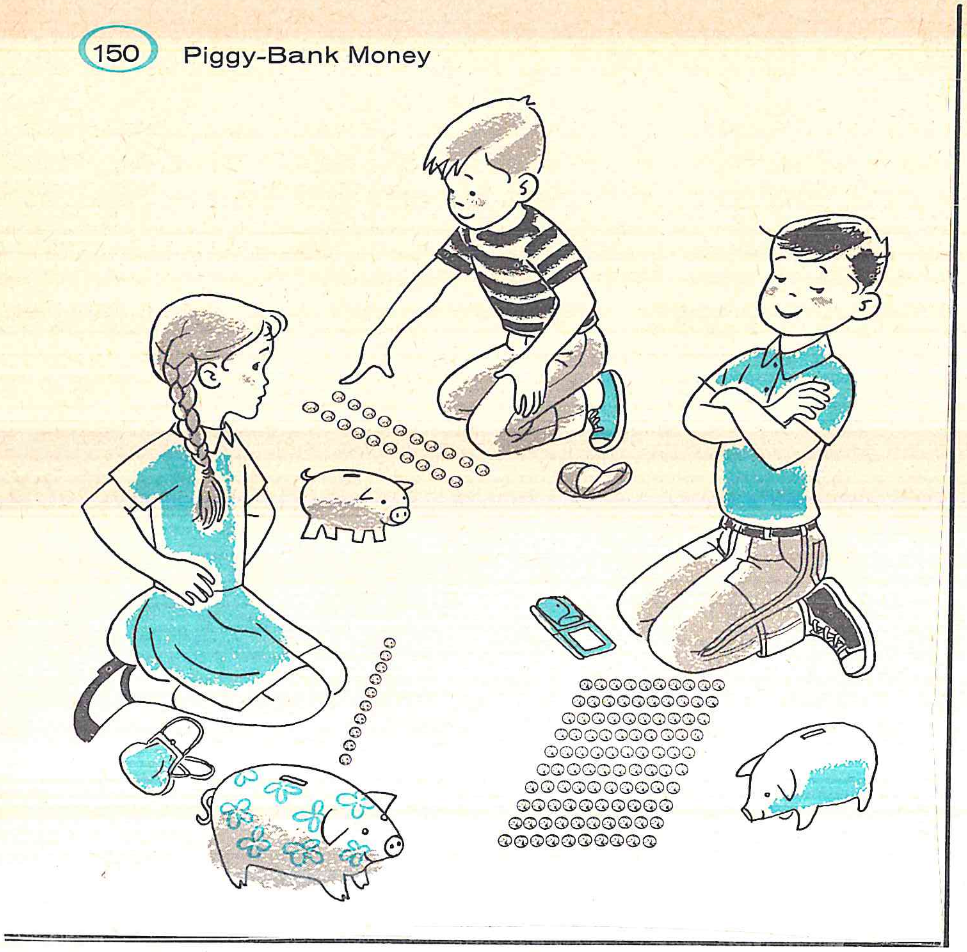
74 means___tens and___ones.

85 means___tens and___ones.

49 means___tens and___ones.

93 means___tens and___ones.

68 means___tens and___ones.


150 Piggy-Bank Money

150

Purpose

To help the children become aware that 100 pennies, 20 nickels, and 10 dimes are the same amount of money.

Vocabulary

Money, dimes, pennies, nickels.

Materials

Real money—100 pennies, 20 nickels, 10 dimes.

Developmental Activity

We have been learning to count by 1's, by 5's, and by 10's, so I am sure this lesson will be enjoyable.

Have you ever had an aunt or a grandmother visit you? Do they often bring you gifts? Do they ever bring a gift of money? Do they encourage you to save money? Give time to share ideas.

Procedure

Today our lesson is about an aunt who visited her niece and nephews. Aunt Sue lived far away and did not see the children very often. When she visited the family, she always brought a gift for Linda, Dean, and Allen. Can you guess what Aunt Sue gave the children on this visit? Discuss.

Let's open our books to page 150 to find out what Aunt Sue gave the children. It was __________. [money]

What are the children doing? [counting their money] **Do you see some things on the floor in which the children can save their money?** [banks] **How many banks are there?** [3]

Dean is the tallest one in the picture. What does he have in front of him? [rows of pennies] **What does Allen have?** [2 rows of nickels] **What does Linda have?** [a row of dimes]

Would anyone like to guess who has the most money? How can we find out who has the most money? [by counting]

Shall we begin by counting the dimes. We know how to count by 10's, so let us begin. Have the children count. **How much money does Linda have?** [100 cents] **I will write it on the chalkboard:** *Linda—100 cents.*

We are learning how to count by 5's, also. Let us count Allen's money. Who would like to try? Who else will try counting the money by 5's? Watch what I put on the board: *Allen—100 cents.*

Now who knows how to count Dean's pennies? [Counting by 1's is one way.] Have someone count. **How many pennies are there?** [100] Write on the chalkboard: *Dean—100 cents.*

How many pennies are there in each row? [10] **Can you guess what a quicker way of counting the pennies is?** [by 10's] **Who will do it?**

Who has the most money? [No one child, each has 100 cents.] **Do you think Aunt Sue planned it that way?** [yes]

Extended Activity

Make a class record sheet. Give children additional opportunities to demonstrate their ability to count by 5's, 10's, and 1's. This is a record for the teacher.

Purpose

To count coins and to select the object which the coins will buy.

Vocabulary

Nickels, pennies, dimes, cents, upper left, lower left, how many, more, miniature toys, upper right, lower right, coins.

Materials

Nickels, pennies, dimes, pictures of trucks, miniature toys, or other objects.

Developmental Activity

This is an extension of page 143 that includes combinations of coins from 11¢ to 22¢. The time spent by the class in identifying coins and recognizing the combinations before doing the lesson in the book makes the page more significant. For example, ask questions, such as: **One dime, 1 nickel, and 1 penny more make how many cents? One dime, 1 nickel, and 2 pennies more are how many cents? Two dimes and 1 penny are the same as how many cents? One dime, 2 nickels, and 2 pennies more make how many cents?**

The use of real or play coins and toys to provide experiences in "buying and selling" will be effective here. Pictures mounted on cardboard and placed on the chalktray may be substituted for the toys.

Procedure

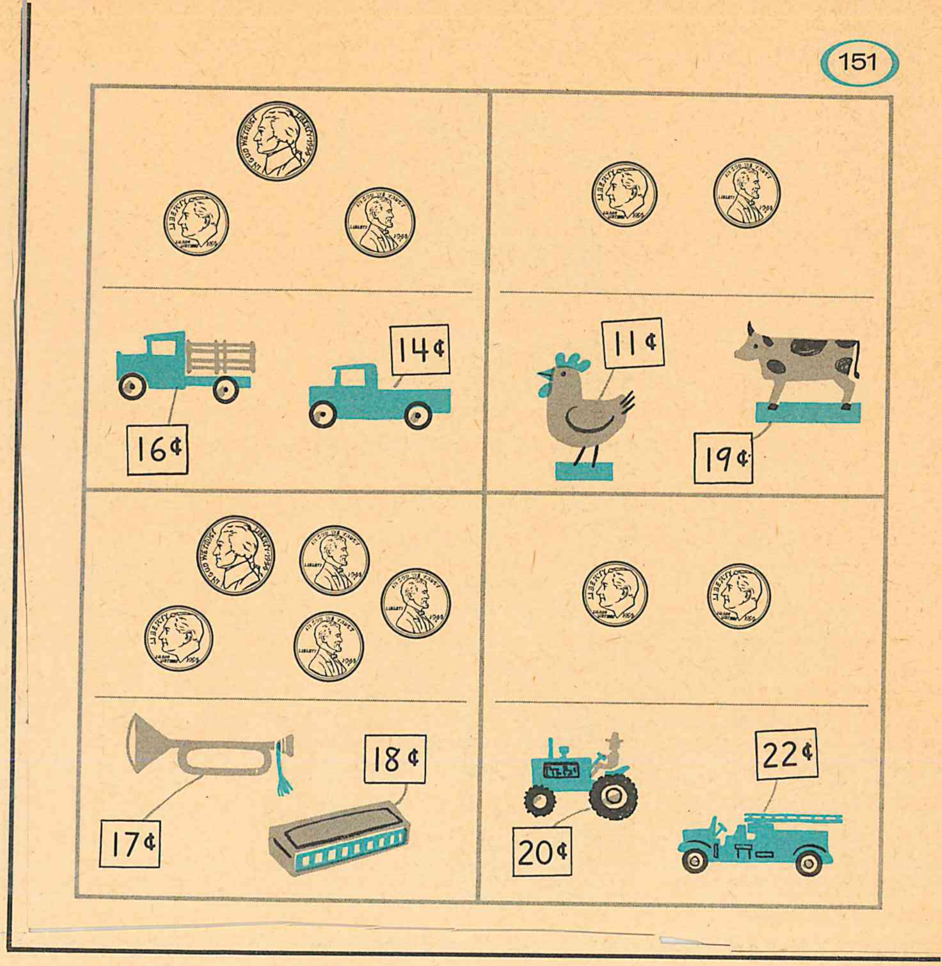
Open your books to page 151.

Look at the coins in the upper box on the left-hand side of the page. What coins do you see? [a dime, a nickel, and a penny] **How much money is that?** [16¢] **Who can write it on the board? Now who can find the little truck that you can buy for the same amount of money? Draw a ring around the truck.**

Now look at the coins in the top box on the right-hand side of the page. What coins are they? [a dime and a penny] **How much money is it?** [11¢] **Who can write it on the chalkboard? Which toy animal can you buy for 11¢? Draw a ring around that toy.**

Now look at the other coins on the left-hand side of the page. What coins are they? [a dime, a nickel, and 3 pennies] **How much money is that?** [18¢] **Who can write it on the chalkboard? Draw a ring around the toy marked 18¢.**

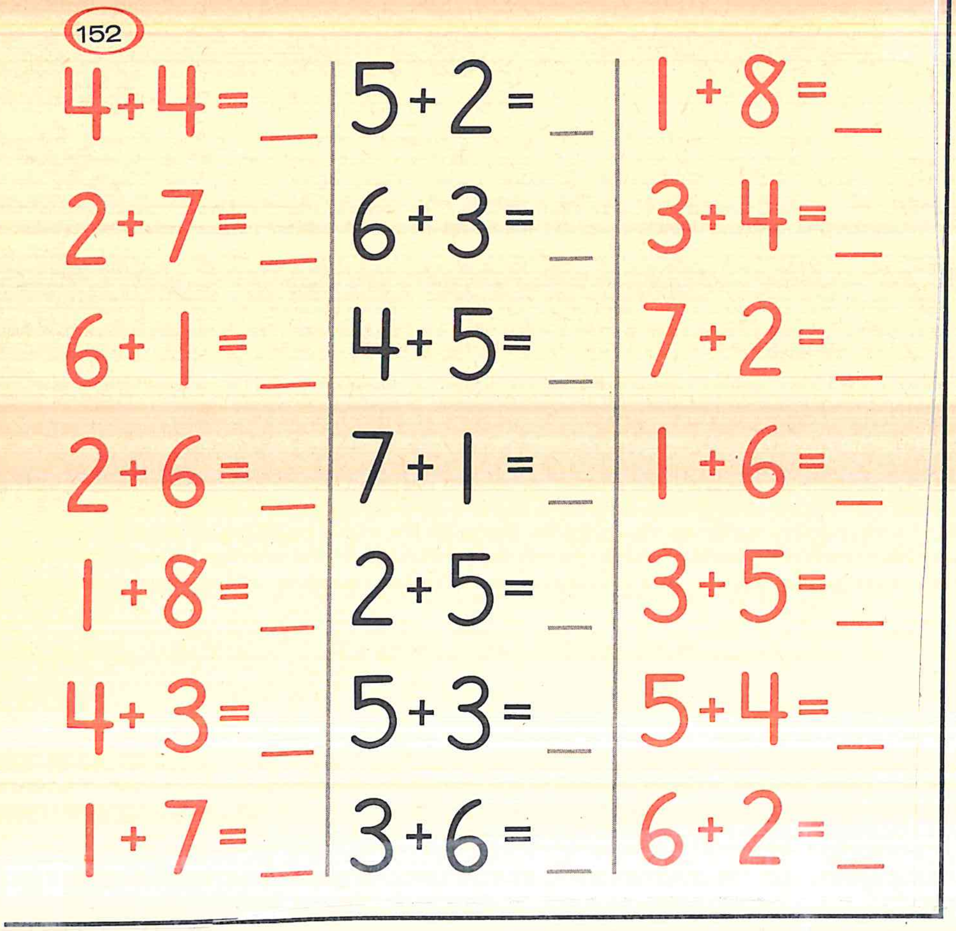
Now look at the coins in the box under the chicken and cow. What are they? [2 dimes] **How many cents are they worth?** [20¢] **Write it next to the coins. Find the toy that sells for 20¢. Draw a ring around it.**



Extended Activity

This page can be used again by asking the children to tell *how many more coins* or *how many less coins* would be needed to buy the other articles in each box.

A similar worksheet could be given to the children. Other combinations of coins and different objects should be used.



152

4+4=_

2+7=_

6+1=_

2+6=_

1+8=_

4+3=_

1+7=_

5+2=_

6+3=_

4+5=_

7+1=_

2+5=_

5+3=_

3+6=_

1+8=_

3+4=_

7+2=_

1+6=_

3+5=_

5+4=_

6+2=_

152

Purpose

To provide practice with the addition facts in 7, 8, and 9.

> This review and practice session helps each pupil *to say*, *to see*, and *to write* as he thinks about addition.

Materials

A set of 9 counters.

Developmental Activity

Draw 7 circles on the chalkboard: 0 0 0 0 0 0 0. Quickly have the pupils name and show with their counters the pairs of subgroups that make 7 (1 + 6, 6 + 1, etc.). Hold a piece of chalk to show the appropriate separations of the circles on the chalkboard.

Use the same procedure for 8 and 9.

Procedure

Open your books to page 152. Write in the numeral to finish each number sentence. Make good numerals. Are you sitting up tall?

Circulate and give help as needed.

Extended Activity

Have each pupil take his Number Flash cards home to play Addition Number Flash with his parents.

Purpose

To provide practice with the subtraction facts in 7, 8, and 9.

Materials

A set of 9 counters.

Developmental Activity

Have each pupil take out a set of 9 counters. Have the pupils work each example on page 153 with their counters as you say it. For example: **Show me 9 counters. Now take away 2 of them. Frame those that are left.** [7] Follow this procedure for each of the combinations.

Procedure

Open your books to page 153. Write the numeral to finish each number sentence. Make good numerals. Are you sitting up tall?

Circulate and help as needed.

Extended Activity

Have each pupil take his Number Flash cards home and play Subtraction Flash with his parents.

For those needing extra help and practice, pass out paper with number lines on it. Have the children work each example on the number line.

9 - 2 = _

7 - 1 = _

8 - 4 = _

9 - 5 = _

8 - 7 = _

7 - 5 = _

8 - 1 = _

8 - 6 = _

9 - 4 = _

7 - 3 = _

9 - 7 = _

8 - 2 = _

9 - 3 = _

7 - 6 = _

7 - 2 = _

9 - 1 = _

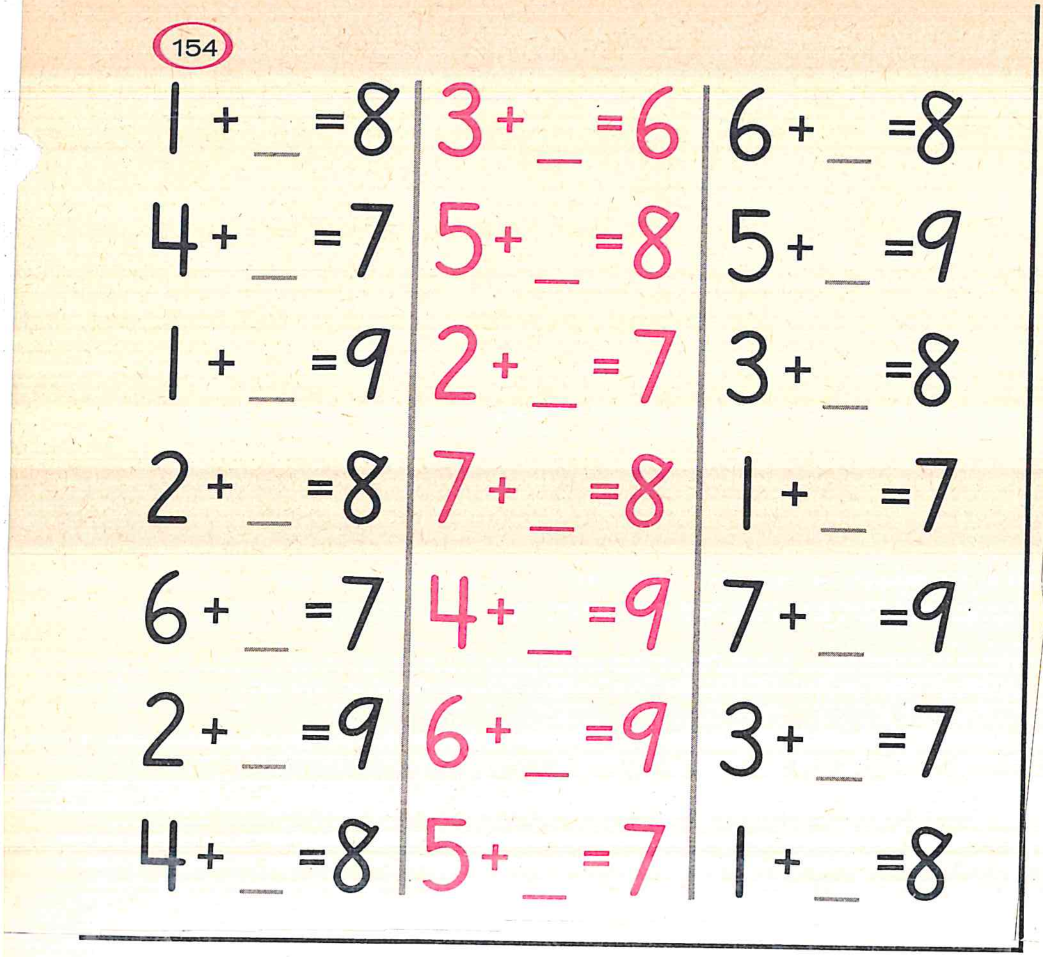
8 - 5 = _

9 - 8 = _

7 - 4 = _

9 - 6 = _

8 - 3 = _



154

1 + _ = 8
4 + _ = 7
1 + _ = 9
2 + _ = 8
6 + _ = 7
2 + _ = 9
4 + _ = 8

3 + _ = 6
5 + _ = 8
2 + _ = 7
7 + _ = 8
4 + _ = 9
6 + _ = 9
5 + _ = 7

6 + _ = 8
5 + _ = 9
3 + _ = 8
1 + _ = 7
7 + _ = 9
3 + _ = 7
1 + _ = 8

154

Purpose

To provide practice with subtraction as finding the missing addend in the 7-, 8-, and 9-groups.

Materials

A set of 9 counters.

Developmental Activity

Have each pupil take out a set of 9 counters. Have the pupils work each example on page 154 with their counters as you say it. For example, **Show me 1 counter. One and how many more make 8 counters?** The pupils would arrange a 7-group and 1 more.

0 0 0 0 0
0 0 0

Use this procedure for each of the combinations.

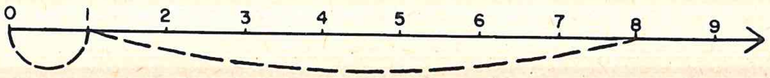
Procedure

Open your books to page 154.

Write the correct numeral in the blank space in each number sentence. Make good numerals. Are we sitting up tall?

Extended Activity

Pass out paper with number lines on it. Have the children use the number line to show the answer to each example on the page. For example, 1 and 7 more are 8.



Purpose

To develop the ability to read the numerals from 1 through 99 with understanding and to discover some of the structure of the hundred chart.

Vocabulary

Hundred chart, before, after, even, odd.

Materials

A tagboard hundred chart 24″ x 36″.

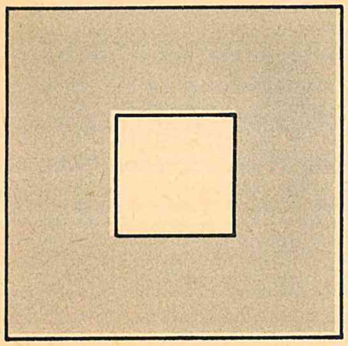
Developmental Activity

Have pupils take turns reading a column on the chart in two ways: (1) the number name as 29 and (2) the expanded way as 2 tens and 9 ones.

Have a pupil find a row that goes by 10's. Have a pupil find a row that ends in 5's.

Have pupils find the numeral for 2 tens and 7 ones, etc.

Make a target card the size of 9 squares (3 squares by 3 squares) on the hundred chart. Cut out the center square. Put the target card over a numeral and have the pupils tell what numerals come before and after.



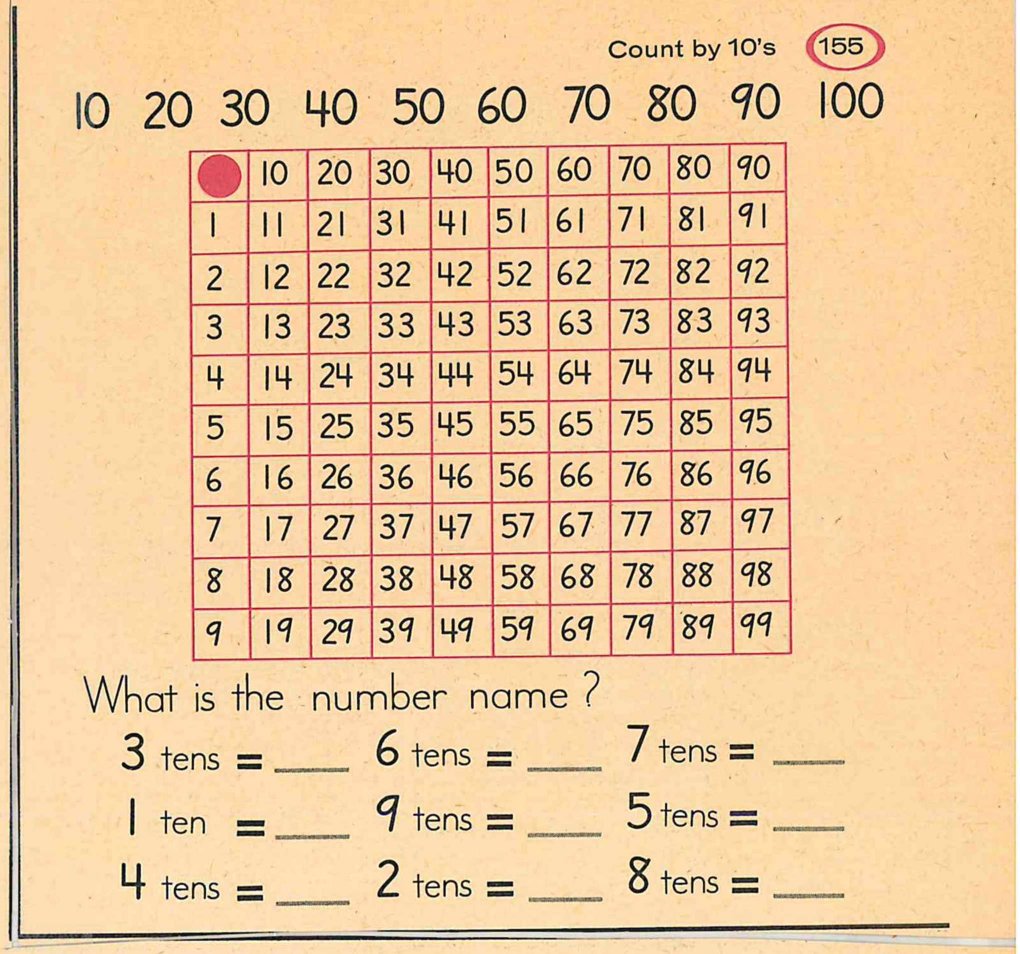
Play a game. **I'm thinking of a number that is 1 more than 17, who can find it? I'm thinking of a number that is 2 more than 21. What is the number? Find it on the chart.**

Procedure

Open your books to page 155.

Who can count by 10's to 100? Have the group softly count by 10's to 100. **Who can count by 10's to 100 and point to each numeral as he counts?** Have several pupils count and touch each numeral as they do so.

I will read some numerals; put your finger on each numeral as I do so. They are all in the first row at the top of the page: 60—20—70—30—90—10—40—100—50.



Count by 10's 155

10 20 30 40 50 60 70 80 90 100

●	10	20	30	40	50	60	70	80	90
1	11	21	31	41	51	61	71	81	91
2	12	22	32	42	52	62	72	82	92
3	13	23	33	43	53	63	73	83	93
4	14	24	34	44	54	64	74	84	94
5	15	25	35	45	55	65	75	85	95
6	16	26	36	46	56	66	76	86	96
7	17	27	37	47	57	67	77	87	97
8	18	28	38	48	58	68	78	88	98
9	19	29	39	49	59	69	79	89	99

What is the number name?

3 tens = ___ 6 tens = ___ 7 tens = ___
1 ten = ___ 9 tens = ___ 5 tens = ___
4 tens = ___ 2 tens = ___ 8 tens = ___

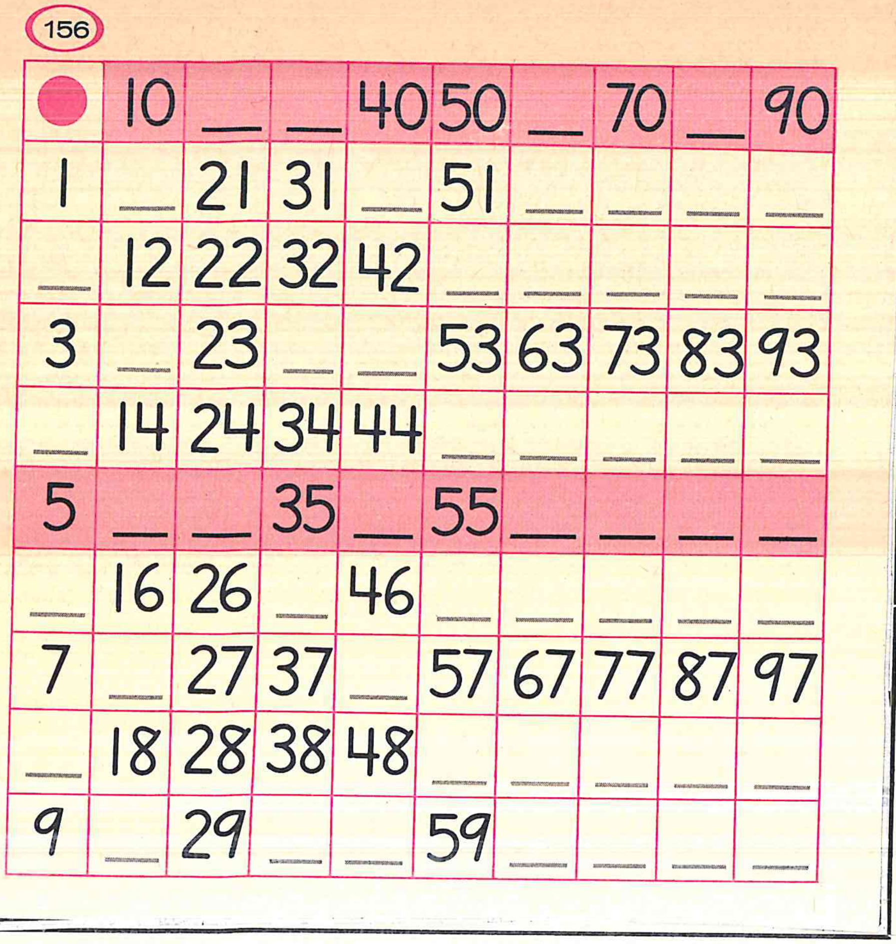
Let's use our chart to count by 2's to 20. Touch each numeral as we count: 2—4—6—8—10—12—14—16—18—20. Have individuals count by 2's, starting at 30, 40, 50, or other points on the chart.

Can we count by 5's on our chart? Have a pupil do so. Have him touch each numeral as he reads it. Repeat with the class.

Look at the bottom of the page. Have the pupils orally answer the exercise. **Now write the answers. Are we sitting up tall?**

Extended Activity

Play "Who Am I?". **I come between 42 and 44, etc.** Have pupils write the answers on the chalkboard.


156

●	10	_	_	40	50	_	70	_	90
1	_	21	31	_	51	_	_	_	_
_	12	22	32	42	_	_	_	_	_
3	_	23	_	_	53	63	73	83	93
_	14	24	34	44	_	_	_	_	_
5	_	_	35	_	55	_	_	_	_
_	16	26	_	46	_	_	_	_	_
7	_	27	37	_	57	67	77	87	97
_	18	28	38	48	_	_	_	_	_
9	_	29	_	_	59	_	_	_	_

156

Purpose

To extend the ability to write and read numerals from 1 through 99.

Procedure

Open your books to page 156.

Look at the first row across. What color is it? [red] **What numerals are missing?** Work orally. [20, 30, 60, 80] **Now write in the missing numerals in the top row.**

Look at the first column. Point to it. **What numerals are missing?** [2, 4, 6, 8] **Are these numerals odd or even?** [even] **Write these numerals in.**

Which numerals are missing in the next column? [11, 13, 15, 17, 19] **Are these odd or even?** [odd] **Write them in.**

Which numeral is missing in the next column? [25] **Write it.**

Which numerals are missing in the next column? [33, 36, 39] **Write them.**

Which numerals are missing in the next column? [41, 43, 45, 47, 49] **Can you write them?**

Now listen carefully. I am going to say a number. You are to write in the numeral that comes after it. Ready? Read slowly. **55—70—83—67—73—90—97.**

Listen carefully again. I am going to say a number. You are to write in the numeral that comes before it. Read slowly. **77—55—87—73—97—83—93—59. Now write in any numerals that are missing. Are we sitting up tall?**

Extended Activity

Number lotto and bingo are excellent activities at this stage of development. They require both auditory and visual recognition. Small groups enjoy playing them.

Purpose

To review the various measuring instruments by relating them to life situations.

Vocabulary

Weigh, temperature, clock, pint, gallon, scales, thermometer, calendar, quart, spoons, cups.

Materials

For each child a 2″ square of cardboard to cover the boxes on the page.

Procedure

There are many possible approaches to this page.

The most important thing is to test each child's ability to relate the measuring instrument functionally to some aspect of life.

Work in small groups around the table.

Give each child a square piece of cardboard.

Open your books to page 157. This page is a game that is something like a riddle.

I will say a few words about something on this page. You are to find the thing I am talking about and place your cardboard over it.

I am thinking of something that I can use to weigh myself at home. Find it. [bathroom scales] **Cover the box.**

I am thinking of something that Mother uses at the market when she weighs fruit or vegetables. Find it. [grocer's scales] Check to see how the children are working.

I am thinking of something the nurse uses when she weighs you. Find it. [nurse's scales] **Cover the square.**

Now I am looking at something that tells us the temperature of our room or how warm it is in our room. Find it. [thermometer] **Cover it.**

Now I am looking at something that Mother uses to find out whether you have a fever. Find it. [clinical thermometer] **Cover it.**

I am looking at something that is used in the kitchen. Three of these equal one big tablespoon. Find it. [teaspoon] **Cover it.**

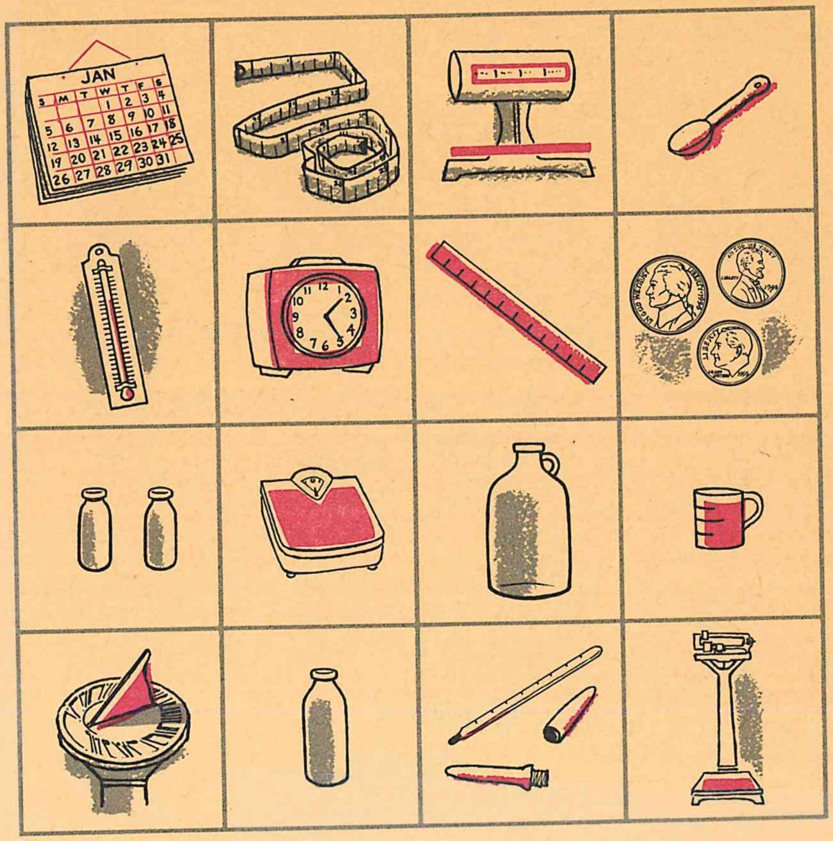
Find something that tells us when it is lunch time. [clock] **Cover it.**

Find something that tells the days, the week, the month, the year. [calendar] **Cover it.**

Find something that is often found in parks and gardens. This tells time, too. [sundial] **Cover it.**

Find something that Mother uses when she sews. [tape measure] **Cover it.**

What Do These Measure? 157



Find something that Daddy uses when he builds things. [ruler] **Cover it.**

Find something we keep in a purse. [money] **Cover it.**

Find something that Mother uses to measure the flour when she bakes a cake or cookies. [measuring cup] **Cover it.**

I am thinking of something which is as large as two pints. Find it. [quart] **Cover it.**

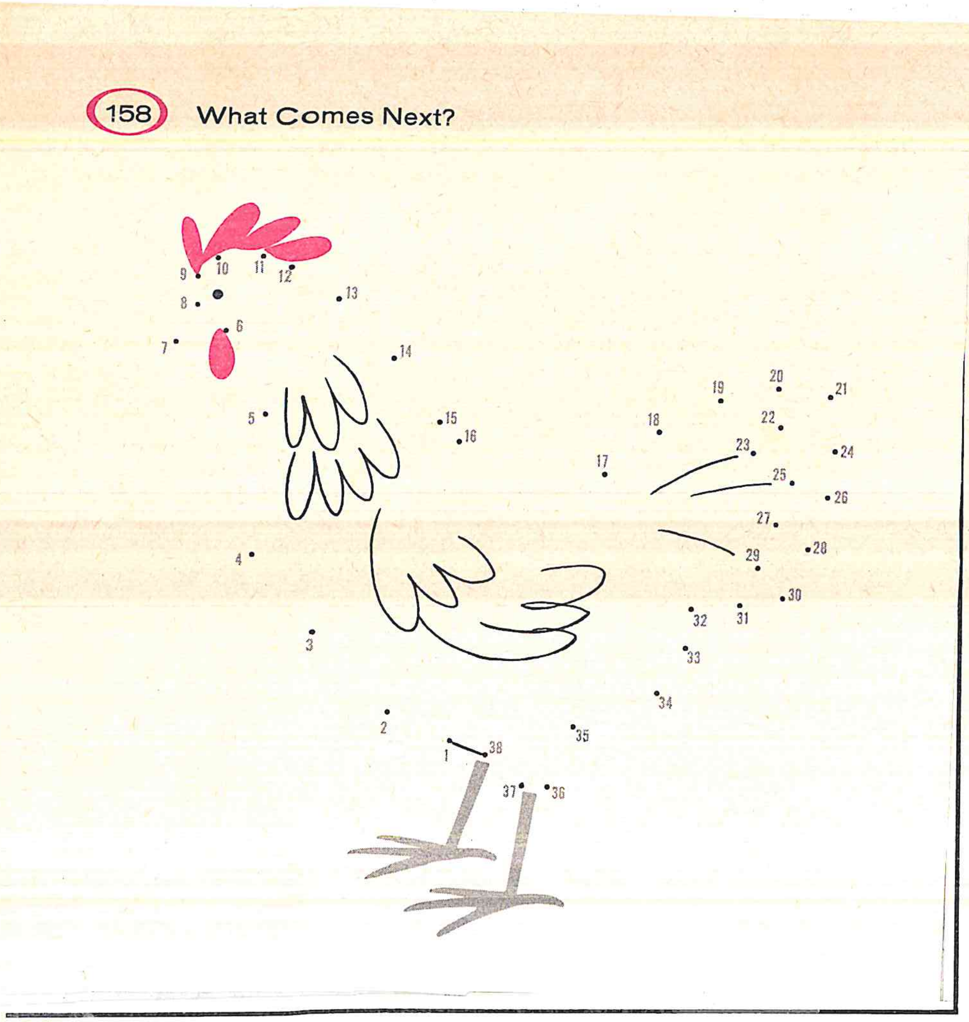
I am thinking of something mother buys cider in at Halloween. Find it. [gallon bottle] **Cover it.**

I am thinking of two things which are equal to a quart. Find them. [pint bottles] **Cover them.**

Extended Activity

Using this page, the class may play a guessing game. Ask one child to name one of the objects and ask another child to tell the object's use. Listening to the children gives the teacher insights into their ability to express themselves.

A further suggestion might be to have the children cut the page apart and mount the pictures on 4″ cardboard squares to play this guessing game. The cards may also be taken home.


158 What Comes Next?

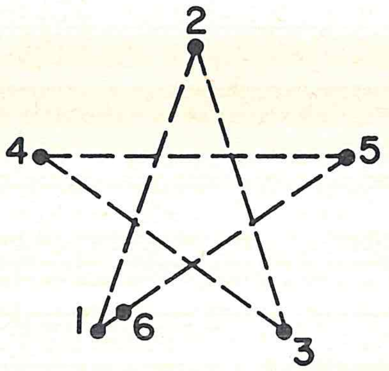
158

Purpose

To develop the ordinal use of 1 through 36.

Developmental Activity

Put this simple pattern for a star on the chalkboard.



Boys and girls, we have all made pictures by following the numerals and dots, haven't we? Do you remember how we did this? Demonstrate with the star. Start at the dot beside the numeral 1.

Procedure

Open your books to page 158.

This is a big dot picture, isn't it? Can you guess what the picture will be when you have drawn the lines?

Where do we start? [at 1] **Where is the 1?** [down by the legs] **Now draw lines with your crayon, starting at 1 and going on. Be sure to go from each numeral to the numeral that comes next.**

Extended Activity

Play the game, What Number Am I? For example: **I am 3 tens and 4 ones, what number am I?** [34, thirty-four] Have pupils take turns saying the answers and writing the numerals on the chalkboard.

Purpose

To test the addition facts in 6, 7, 8, and 9.

Materials

A set of flash cards for the 26 addition combinations in 6, 7, 8, and 9.

Developmental Activity

Quickly run through the flash cards with the group as a warmup.

Procedure

Open your books to page 159.

These are addition examples. Let's see how well we can do them. Are we sitting up tall? You may start now. Write carefully.

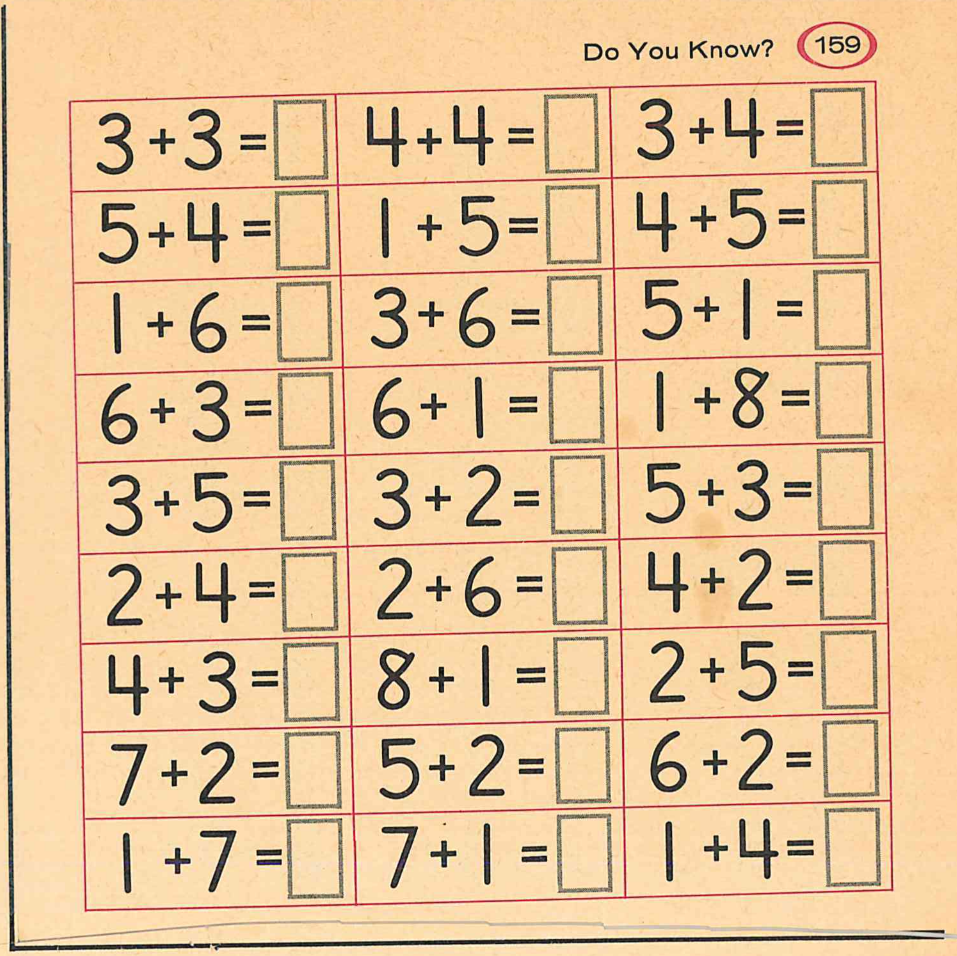
Circulate and give help as needed.

When everyone has finished, read the answers and have each pupil put a ring around each incorrect answer.

Extended Activity

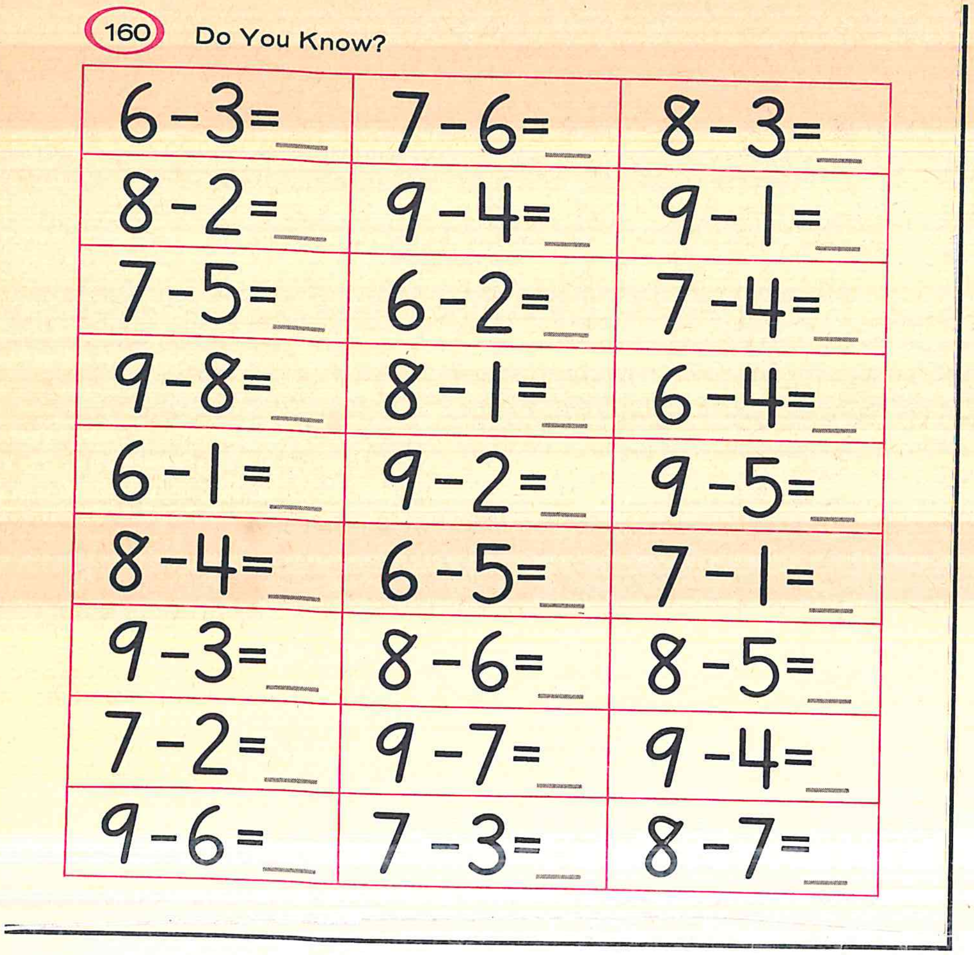
Have each pupil find the correct answers to examples missed, by using his counters.

Provide sets of 2″ x 3″ tagboard cards for the children to make flash cards of addition combinations which are troublesome to them. Have pupils practice with their flash cards during quiet times.



Do You Know? 159

3 + 3 = ☐	4 + 4 = ☐	3 + 4 = ☐
5 + 4 = ☐	1 + 5 = ☐	4 + 5 = ☐
1 + 6 = ☐	3 + 6 = ☐	5 + 1 = ☐
6 + 3 = ☐	6 + 1 = ☐	1 + 8 = ☐
3 + 5 = ☐	3 + 2 = ☐	5 + 3 = ☐
2 + 4 = ☐	2 + 6 = ☐	4 + 2 = ☐
4 + 3 = ☐	8 + 1 = ☐	2 + 5 = ☐
7 + 2 = ☐	5 + 2 = ☐	6 + 2 = ☐
1 + 7 = ☐	7 + 1 = ☐	1 + 4 = ☐



Do You Know?

6-3=_	7-6=_	8-3=_
8-2=_	9-4=_	9-1=_
7-5=_	6-2=_	7-4=_
9-8=_	8-1=_	6-4=_
6-1=_	9-2=_	9-5=_
8-4=_	6-5=_	7-1=_
9-3=_	8-6=_	8-5=_
7-2=_	9-7=_	9-4=_
9-6=_	7-3=_	8-7=_

160

Purpose

To test the subtraction facts in 6, 7, 8, and 9.

Materials

A set of flash cards for the 26 subtraction combinations in 6, 7, 8, and 9.

Developmental Activity

Quickly run through the flash cards with the group as a warmup.

Procedure

Open your books to page 160.

What kind of examples are these? [subtraction examples] **Let's see how well we can do them. Are we sitting up tall? Remember to write carefully. You may start now.**

Circulate and give help as needed.

When all the children are finished, read the answers and have each pupil put a ring around each one he missed.

Extended Activity

Have each pupil find the correct answer to each example missed, by using his counters.

Provide a set of 2″ x 3″ tagboard cards so the children may make a flash card for each troublesome subtraction combination. Have pupils practice with their flash cards during free time.

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Boldface numerals refer to pages in the Teachers Edition.

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(60 percent of actual size)

2	●●	1 + 1	two	||
3	●●●	2 + 1	three	|||
4	●●●●	3 + 1	four	||||
5	●●●●●	4 + 1	five	𝍸
6	●●●●●●	5 + 1	six	𝍸 |
7	●●●●●●●	6 + 1	seven	𝍸 ||
8	●●●●●●●●	7 + 1	eight	𝍸 |||
9	●●●●●●●●●	8 + 1	nine	𝍸 ||||